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(54) Karaoke reproducing apparatus

Karaokewiedergabegerät

Appareil de reproduction karaoké

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(73) Proprietor: PIONEER ELECTRONIC
CORPORATION
Meguro-ku, Tokyo (JP)

(72) Inventors:
• Moriyama, Yoshiaki,
c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)
• Ono, Kouichi, c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)
• Miyazawa, Tatsuyuki,
c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)
• Fujii, Hiroshi, c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)
• Miyashita, Masahiko,
c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)
• Hosaka, Sumio, c/o Pioneer Tokorozawa Plant
Tokorozawa - City, Saitama (JP)

(74) Representative: Tomlinson, Kerry John
Frank B. Dehn & Co.,
European Patent Attorneys,
179 Queen Victoria Street
London EC4V 4EL (GB)

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Description

[0001] The present invention relates to a recording medium reproducing apparatus which has a recording medium on which e.g. karaoke playing sounds of a plurality of music pieces have been recorded and which is used to reproduce the playing sounds of selected one of the plurality of music pieces.

[0002] Karaoke reproducing apparatuses are generally designed that a music piece selection number (music piece code) which is predetermined for each music piece is input by a key operation when the user selects a desired music piece from a plurality of karaoke music pieces. After the music piece selection number has been input as mentioned above, when the playing order of the desired music piece comes, the karaoke playing sound of the music piece corresponding to the music piece selection number is generated from the karaoke reproducing apparatus.

[0003] In conventional karaoke reproducing apparatuses, some apparatuses are devised to display the music piece selection number which has been input by the key operation so as to allow the user to confirm whether or not the key operation by the user has been correctly executed. However, when the key operation is performed by a user who has mistaken the correspondence between the desired music piece and the music piece selection number, the user will not notice such a mistake when seeing only the display of the music piece selection number. This will result that the desired music piece is not actually outputted from the karaoke reproducing apparatus as a playing sound, after the lapse of a long waiting time.

[0004] Furthermore, when selecting a music piece, the user cannot select the music piece unless he knows at least a music title name or a singer name of the music piece which he wants to sing.

[0005] JP-A-4011288 discloses a karaoke player in which music information read from a disc is displayed on a screen to allow a user to choose a music piece by inputting a code from a menu displayed on the screen. EP-A-465246 also discloses a karaoke player in which a menu read from information on a disc is displayed on a screen to allow for selection of a music piece. JP-A-3120686 describes a karaoke music selection device.

[0006] It is the first object of the present invention to provide a recording medium reproducing apparatus which can easily discriminate whether a music piece selected by the user could be correctly accepted or not.

[0007] The second object of the invention is to provide a recording medium reproducing apparatus which can select a desired music piece even if the user doesn't know a music title name, a singer name, or the like of a music piece which the user wants to sing or can select a music piece having a desired function.

[0008] According to the first feature of the invention, there is provided a recording medium reproducing apparatus for reproducing sound recorded on a recording

medium on which at least sound data of a plurality of music pieces have been recorded, comprising: means for generating a selection music piece command to select one music piece of said plurality of music pieces in accordance with a selection operation; playing means

5 for playing said recording medium with respect to said one music piece according to said selection music piece command; a memory for storing music title name information of at least one of said music pieces recorded on said recording medium; means for reading said music title name information corresponding to said selection music piece command from said memory when said selection music piece command is generated; display means for displaying said music title name information 10 read from said memory; main image video signal generating means for generating a first video signal representing a main image; selection table image generating means for generating a second video signal representing a selection table based on said music title name information; and a display control means for synthesizing said first and second video signals to produce a synthesized video signal, and for controlling said display means to display an image represented by said synthesized video signal.

15 **[0009]** In the reproducing apparatus according to the first feature of the invention, when one music piece is selected from a plurality of music pieces by the selection operation, the music title name information of the selected music piece is immediately displayed.

20 **[0010]** According to the second feature of the invention, there is provided a recording medium reproducing apparatus for reproducing sound from a recording medium on which at least sound data of a plurality of music pieces have been recorded, the apparatus reproducing a playing sound of a selected music piece of said plurality of music pieces by playing the recording medium, wherein said apparatus comprises: memory means for storing music piece classification information of each of said plurality of music pieces recorded on said recording 25 medium wherein said music piece classification information represents at least one characteristic of each of said plurality of music pieces; instructing means for generating an item content selection command to designate the contents of at least one of a plurality of different items included in said music piece classification information in accordance with a selection operation; display means; searching means for searching for the music piece corresponding to the contents of said at least one item indicated by said item content selection command 30 from said memory means; main image video signal generating means for generating a first video signal representing a main image; selection table image generating means for generating a second video signal representing a selection table based on said music selection classification information; and a display control means for synthesizing said first and second video signals to produce a synthesized video signal, and for controlling said display means to display an image represented by said

synthesized video signal.

[0011] According to the second feature of the invention, there is provided a reproducing apparatus having memory means in which music piece classification information of each of the music pieces recorded on a recording medium is stored, an item content selection command to designate the contents of at least one of a plurality of different items included in the music piece classification information is generated in accordance with a selection operation, and the music piece corresponding to the contents of at least the one item indicated by the item content selection command is searched for through the memory means.

[0012] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Fig. 1 is a block diagram showing an embodiment of the present invention;
 Fig. 2 is a diagram showing a construction of an information area of a disc;
 Fig. 3 is a diagram showing a construction of a karaoke information file;
 Fig. 4 is a flowchart showing the installing operation;
 Fig. 5 is a flowchart showing the music piece selecting operation;
 Fig. 6 is a diagram showing a selection music piece list table;
 Fig. 7 is a diagram showing a recording permission/inhibition data table;
 Fig. 8 is a flowchart showing the disc playing operation;
 Fig. 9 is a flowchart showing an example of another installing operation;
 Fig. 10 is a flowchart showing the music title name searching operation;
 Fig. 11 is a flowchart showing a continuing portion of the music title name searching operation in Fig. 10;
 Fig. 12 is a flowchart showing a continuing portion of the music title name searching operation in Fig. 10;
 Fig. 13 is a diagram showing a display picture plane of classification items of music piece classification information;
 Fig. 14 is a diagram showing the contents and selection numbers of a main theme image of music pieces;
 Fig. 15 is a diagram showing the contents and selection numbers of music piece themes;
 Fig. 16 is a diagram showing the contents and selection numbers of situations of music pieces;
 Fig. 17 is a diagram showing the contents and selection numbers of special genre of music pieces;
 Fig. 18 is a flowchart showing another example of the music title name searching operation;
 Fig. 19 is a diagram showing the contents and selection numbers of combination of a plurality of

items; and

Fig. 20 is a diagram showing the contents and selection numbers according to a classification different from the music piece classification information regarding music pieces.

[0013] In a karaoke reproducing apparatus shown in Fig. 1, a disc enclosing section 2, a disc conveying section 3, and a player section 4 are provided in an automatic changer 1. A plurality of discs 5 are enclosed in the disc enclosing section 2. When a disc is played, one of the plurality of discs 5 is conveyed onto a turntable (not shown) of the player section 4 by the conveying section 3. When the playing is finished, the disc on the turntable is returned to a position where it was in the disc enclosing section 2 by the conveying section 3. The player section 4 plays the disc on the turntable and outputs read data. The disc conveying section 3 and player section 4 operate in accordance with commands from a system controller 7, which will be explained hereinbelow.

[0014] A data separating circuit 6 is connected to a data output of the player section 4. The data separating circuit 6 separates the data outputted from the player section 4 into various kinds of data such as compressed image data, compressed audio data, control data, information data, and the like and outputs those data from individual output terminals. In addition to the foregoing system controller 7, an audio decoder 8 and a video decoder 9 are connected to the data separating circuit 6. The data separating circuit 6 has a terminal to connect an external apparatus 10. The external apparatus 10 is a controller for karaoke presentations such as illumination, video image, telop, and the like.

[0015] The audio decoder 8 decodes the separated compressed audio data and reconstructs as non-compressed audio data such as PCM digital data or the like. Since audio data of a plurality of channels has been compressed in the compressed audio data, the audio data of the channel designated in accordance with a signal from the system controller 7 is reconstructed. The audio data outputted from the audio decoder 8 is supplied to a D/A converter 11 and converted into the analog audio signal. The analog audio signal is supplied to a speaker 19 through an amplifier 18.

[0016] The video decoder 9 decodes the separated compressed image data and reconstructs as non-compressed image data. The image data outputted from the video decoder 9 is supplied to a D/A converter 12 and converted into the analog moving image video signal. The moving image video signal is directly outputted as a through output and is also supplied to an image synthesizer 21.

[0017] The system controller 7 comprises a microcomputer and receives the separated information data. The information data is stored into an RAM (random access memory) 13 and is also selectively read out from the RAM 13. The read-out information data is processed

in the system controller 7 or is supplied to a display character control circuit 20. The display character control circuit 20 has a character generator and a V-RAM and produces the display character data according to the information data and writes into the V-RAM. The control circuit 20 also reads out the display character data from the V-RAM synchronously with a sync signal of the above moving image video signal and converts it into the character video image signal and supplies it to the image synthesizer 21. The character video image signal is synthesized to the moving image video signal from the D/A converter 12 by the image synthesizer 21.

[0018] The operating section 15, a recording apparatus 16, and a printer 17 are connected to the system controller 7. The operating section 15 has not only a keyboard for designating a playing music piece but also a receiving section (not shown) for receiving the designation of the playing music piece from a remote control transmitter 23. The recording apparatus 16 is used to record the playing sound and singing sound of karaoke onto a recordable compact disc (not shown) such as a CD-R or the like. The audio signal comprising the playing sound and singing sound is supplied from the amplifier 18 to the recording apparatus 16. The printer 17 is used to print recording music piece information such as music title names or the like to a label which is designed so as to be adhered to a compact disc.

[0019] The recording contents of the disc 5 which is played by the player section 4 will now be described. All information has been recorded as digital signals on the disc 5. As shown in Fig. 2, each information recording area of the disc 5 has a non-real-time file area and a real-time file area. An access information file such as a TOC or the like and a karaoke information file comprising the music title names or the like have been recorded in the non-real-time file area. N (N is an integer and corresponds to the number of music pieces) real-time files have been recorded in the real-time file area on the basis of, for example, MPEG (Moving Picture Expert Group) standard. Each real-time file is called a chapter unit. One chapter corresponds to one music piece. The real-time file of one chapter comprises: the compressed image data and compressed audio data of one music piece; and real-time data other than the image and audio sound. Those data are time-division multiplexed and recorded in the file.

[0020] The access information file comprises information indicative of the position and time duration in the disc of each chapter and the like. By referring to such information, an arbitrary chapter can be accessed. The karaoke information file comprises various kinds of information regarding the discs and music pieces. Fig. 3 shows a structure of the karaoke information file. The karaoke information file comprises disc related information and one or more chapter information. One chapter information is the related information of one chapter, namely, music piece. The number of chapter information coincides with the number of music pieces. The disc re-

lated information is the information regarding the whole disc and, for example, the information such as disc contents, identification of the disc itself, the number of music pieces recorded on the disc, and the like.

[0021] Each chapter information includes a chapter information header, common information in the chapter (also referred to as intrachapter common information), information per telop channel, and information per language. The chapter information header comprises ID information, information indicative of the contents, and the like of the chapter information. The intrachapter common information comprises: (1) a nationality of the music piece; (2) year, month, and day of the publication of the music piece; (3) a length of music piece; (4) a copyright code; (5) singer classification; (6) a genre of music piece; (7) a main theme image of music piece and a theme of music piece; (8) a situation of music piece; (9) a special genre of music piece; (10) a tempo of music piece; (11) a location image of music piece; (12) difficulty of music piece; (13) a multiaudio mode; (14) a background video image; (15) control apparatus information; (16) a DSP mode; and the like.

[0022] The information per telop channel is the information regarding the character information (telop) corresponding to the chapter. A plurality of character information series (telop channels) can be allocated to one chapter. For example, telops of a plurality of different languages which can be selected can be added to one chapter. The information per telop channel includes (1) the number of channels of the telop, (2) telop channel number, (3) a telop language, and (4) a character format of telop. A set of information of (2) telop channel number, (3) telop language, and (4) a character format of telop corresponds to one telop channel and as many sets of information as the number of telop channels are recorded.

[0023] The information per language is the information which depends on the language in the information about the chapter and comprises the following information: (1) the number of information per language; (2) a language code; (3) a description code system; (4) a size of information per language; (5) a music title name; (6) reading of the music title name; (7) a name of singer; (8) reading of the name of singer; (9) a name of songwriter; (10) reading of the name of songwriter; (11) a name of composer; (12) reading of the name of composer; (13) the first phrase; (14) reading of the first phrase; (15) location data; and the like. A set of information of (2) a language code to (15) location data corresponds to one language and as many sets of information as the number of information per language are recorded.

[0024] The operation of the above karaoke reproducing apparatus will now be described.

[0025] In the case of newly enclosing a disc into the disc enclosing section 2 of the automatic changer 1, the installing operation is first executed. In the installing operation, when the new disc is enclosed into the disc en-

closing section 2 as shown in Fig. 4 and the system controller 7 detects such a state (step S1), the system controller 7 generates a disc set command to the disc conveying section 3 so as to load the disc onto the turntable of the player section 4 (step S2). When the disc conveying section 3 finishes to load the disc onto the turntable of the player section 4, information indicative of such a loading completion is supplied to the system controller 7 as a loading end signal. When the system controller 7, accordingly, obtains the loading end signal (step S3), the system controller 7 instructs the player section 4 to rotate the disc (step S4) and instructs it to read the data (step S5). The player section 4 rotates the disc together with the turntable. After a rotational speed of the disc reaches a predetermined speed, the data is read out from the non-real-time file area of the disc and is outputted.

[0026] The read-out data is supplied to the system controller 7 through the data separating circuit 6 and is once stored into a buffer memory (not shown) in the system controller 7. The system controller 7 sequentially writes the supplied data into the external RAM 13 (step S6) and discriminates whether the reading of the data by the player section 4 has been finished or not (step S7). For example, the data supplied by the execution of step S6 is written into the RAM 13 until a bit indicative of the end of data supply is supplied and the end of reading of the data is known. When the reading of the data is finished, an operation stop command is generated to the player section 4 (step S8) and a disc return command is generated to the disc conveying section 3 (step S9). The player section 4, therefore, stops the rotation of the turntable. After that, the disc conveying section 3 conveys the disc on the turntable to a predetermined enclosing position of the disc in the disc enclosing section 2 and encloses therein. After completion of the execution of step S9, the system controller 7 discriminates whether any other new disc has been enclosed or not (step S10). When another new disc is enclosed into the disc enclosing section 2, the processing routine advances to step S2. If no new disc is enclosed any more, the installing operation is finished.

[0027] All of the data of the access information file and the karaoke information file mentioned above can be also written as data to be written into the RAM 13. However, it is also possible to write only the music piece data such as at least only the disc number that is peculiar to the disc, address indicative of the enclosing position in the disc enclosing section 2 of the disc, location of each music piece in the disc, music title name, name of singer, name of songwriter, name of composer, length of music piece, copyright code, genre of music piece, tempo of music piece, difficulty of music piece, multiaudio mode, and the like.

[0028] The new disc can be enclosed by an input from the operating section 15 by the user. It is also possible to construct the system in a manner such that a sensor to detect the presence or absence of the disc is provided

at each enclosing position in the disc enclosing section 2, an area to store the detection result is provided in the RAM 13, the detection outputs of all of the sensors are compared with the contents stored in the RAM 13 every 5 installing operation, a discrimination about whether the new disc has been enclosed or not is made, and the result of the discrimination is written into the RAM 13. **[0029]** In the above embodiment, the music piece data such as music title name and the like has been obtained when installing the disc on which the image data and the audio data of the music pieces have been recorded together with the music piece data. The music piece data, however, can be also derived from an exclusive-use disc on which only the music piece data such as music title name and the like has been recorded at the time of installing of the disc. Or, it is also possible to construct the system in a manner such that the music piece data of a plurality of discs on which the image data and audio data have been recorded is recorded onto 10 one of those plurality of discs and those music piece data is derived when installing such one disc. **[0030]** After the installing operation has been performed as mentioned above, the music piece selected by the user can be karaoke reproduced. In the music piece selecting operation, the user first inputs the music piece selection number by operating proper numerical keys or alphabetical keys of the operating section 15 or remote control transmitter 23. The music piece selection number is constructed by a plurality of digits and denotes the number to designate a desired disc and a desired one of music pieces recorded in the disc. When the key operation is performed, the music piece selection number is held in a buffer (not shown) in the operating section 15. As shown in Fig. 5, the system controller 7 discriminates whether a music piece selection key (not shown) of the operating section 15 has been operated at a predetermined timing or by an interrupting operation or not (step S11). When the music piece selection key is operated, the music piece selection number 15 is read out from the above buffer and is written into a music piece selection list table in the RAM 13 (step S12). The music piece selection list table is formed in the RAM 13 and music piece selection numbers and recording flags (which will be explained later) are written in accordance with the playing order as shown in Fig. 6. When the playing is finished, the order is advanced. The music piece name corresponding to the read music piece selection number is read out as information data from the RAM 13 (step S13). The read-out data is supplied to the display character control circuit 20 (step S14). The display character control circuit 20 produces the display character data indicative of the music title name and writes into a predetermined position in the V-RAM. After the display character data has been read out from the V-RAM and converted into the character video image signal, it is supplied to the image synthesizer 21. The character video image signal is outputted from the image synthesizer 21 in place of the moving image video 20 25 30 35 40 45 50 55

signal from the D/A converter 12 in the case of the signal indicative of a predetermined color, so that it is synthesized to the moving image video signal. The music title name is, therefore, displayed as a character video image by the display 22 and it is confirmed that the music piece selected by the key operation has been accepted. [0031] After completion of the execution in step S14, the system controller 7 reads out the copyright code corresponding to the read music piece selection number from the RAM 13 (step S15). Since the copyright code exists in the data which has been read out from the disc and written in the RAM 13 at the time of the installing operation, the copyright code can be read out from the RAM 13. The copyright code is a code indicative of the owner of the copyright of the music piece. On the basis of the copyright code which has been read out, a check is made to see if the selected music piece is a recordable music piece or not (step S16). As shown in Fig. 7, the copyright code, copyright owner, and information indicating whether the recording of the music piece is permitted or inhibited have previously been written as a recording permission/inhibition data table in an ROM (read only memory) 14 provided in the outside of the system controller 7. As for the permission and inhibition of the recording, "1" indicates that the recording is permitted and "0" indicates that the recording is inhibited. A check is, therefore, made to see if the selected music piece is a music piece which can be recorded or not from the recording permission/inhibition data table. If the recording can be performed, a message indicating that the recording can be performed is displayed (step S17). If the recording cannot be performed, a message indicating that the recording cannot be executed is displayed (step S18). Such messages can be displayed by the display 22 or can be also displayed by a display (not shown) which is provided for the apparatus and in order to display whether the recording is permitted or inhibited. In the case of displaying the message by the display 22, display character data indicating whether the recording can be performed or is inhibited is produced by the display character control circuit 20 in accordance with a command from the system controller 7 and is written into the V-RAM.

[0032] After completion of the execution in step S17 because the recording can be performed, the system controller 7 judges whether there is a recording reservation or not (step S19) by checking whether a recording reservation key of the operating section 15 or the remote control transmitter 23 has been operated or not. When there is a recording reservation, the recording flag in the music piece selection list table is set (step S20). Since "0" indicative of the non-recording has previously been written as an initial value of the recording flag in the music piece selection list table, when the recording reservation key is operated, the recording flag is set into "1" indicative of the recording in correspondence to the music piece selection number.

[0033] The disc playing operation will now be de-

scribed. As shown in Fig. 8, when the start of the playing is first instructed by a key operation of the operating section 15 (step S21), the system controller 7 sequentially reads out the music piece selection numbers and recording flags in accordance with the playing order from the first order in the music piece selection list table formed in the RAM 13 (step S22). The disc address, music piece number and its location in the disc corresponding to the read-out music piece selection number are read out from the RAM 13 (step S23). A disc set command is generated to the disc conveying section 3 in order to load the disc in the read-out disc address onto the turntable of the player section 4 (step S24). When the disc conveying section 3 finishes loading the disc onto the turntable of the player section 4, information indicative of such a loading completion is supplied as loading end signal to the system controller 7. On obtaining the loading end signal (step S25), therefore, the system controller 7 instructs the rotation of the disc to the player section 4 (step S26). A check is made to see if the disc playing can be started or not (step S27). For instance, in the case where the playing is inhibited by a key operation of the operating section 15, the disc playing is not started. In the case where the disc playing can be started, the disc playing is instructed from the track of the read-out music piece number (step S28). The player section 4, accordingly, starts to play the music piece designated by the music piece selection number and the reproduced video image signal and audio signal are supplied to the display 22 and the speaker 19. Whether there is a recording reservation or not is discriminated from the recording flag which has been read out (step S29). When the recording flag is set to "1", a recording start command is generated to the recording apparatus 16 (step S30). Since the audio signal including the singing sound is supplied from the amplifier 18 to the recording apparatus 16, it is recorded to a compact disc in response to the recording start command. [0034] After step S30 has been executed, the system controller 7 reads out the recording music piece information corresponding to the music piece selection number which has been read out in step S22 from the RAM 13 (step S31). The recording music piece information includes at least the music title name, songwriter name, and composer name. Information such as singer name, recording day and time, location, and the like can be also added to the recording music piece information. After those recording music piece information has been read out, it is supplied to the printer 17 (step S32). The printer 17 prints the recording music piece information to a label which is designed so as to be adhered to the compact disc. By adhering the label to the label surface of the compact disc recorded, it becomes the record about the recorded music piece. It will be obviously understood that the recording music piece information can be also directly printed to the label surface of the compact disc instead of the label.

[0035] After step S32 has been executed, the system

controller 7 judges whether the playing of the selected music piece has finished or not (step S33) by checking the time information in the control data which is supplied from the data separating circuit 6 by the playing of the disc. After completion of the playing of the selected music piece, a playing stop command is generated to the player section 4 (step S34) and a disc return command is generated to the disc conveying section 3 (step S35). The player section 4, therefore, stops the disc playing operation. After the rotation of the turntable has been stopped, the disc conveying section 3 conveys the disc on the turntable to a enclosing position where the disc was in the disc enclosing section 2 and encloses the disc therein. After the disc return command has been generated, the system controller 7 advances the music piece order in the selection music piece list table by one music piece (step S36). A check is made to see if the music piece selection number has been recorded at the first position in the selection music piece list table or not (step S37). If the music piece selection number has been recorded, the processing routine is returned to step S22 and the above operation is repeated. On the other hand, when no music piece selection number is recorded, the playing operation is finished.

[0036] Fig. 9 shows another procedure of the installing operation. In the installing operation of Fig. 9 which relates to a case where in addition to the copyright code, the information such as copyright owner, recording permission/inhibition information, and date of registration of the recording permission/inhibition information is recorded on the disc. A recording permission/inhibition data table shown in Fig. 7 is formed in the RAM 13 instead of the ROM 14. That is, as shown in Fig. 9, steps S1 to S7 are similar to the installing operation shown in Fig. 4 and the read-out data is written into the RAM 13 through the system controller 7. In the writing operation, the copyright owner and the recording permission/inhibition data are not written into the recording permission/inhibition data table but are merely written into RAM 13 as data of each disc or music piece. After completion of the reading of the data, a check is made to see if the recording permission/inhibition information registration date which has been read out from the disc is the newest date or not (step S41). If the recording permission/inhibition information registration date is not later than the latest registration date stored in the RAM 13, step S8 follows and the operation of the player section 4 is stopped. On the other hand, when the recording permission/inhibition information registration date is later than the latest registration date, the recording permission/inhibition data table is updated by the various information of the copyright owner and the recording permission/inhibition which were read out (step S42). Further, the updating registration date is updated by the read-out recording permission/inhibition information registration date (step S43). After step S43 has been executed, step S8 follows. Steps S8 to S10 are similar to the installing operation shown in Fig. 4.

[0037] It is also possible to construct the system in a manner such that the service person for maintenance, inspection, and the like of the karaoke reproducing apparatus can change the copyright owner and recording permission/inhibition data of the recording permission/inhibition data table by a special key operation of the operating section 15.

[0038] It will be obviously understood that the recording medium on which at least karaoke playing sounds of a plurality of music pieces have been recorded is not limited to the disc but another recording medium such as a tape or the like can be also used.

[0039] In the karaoke reproducing apparatus according to the first feature of the present invention as mentioned above, the memory in which the music title name information of each of the music pieces recorded on the recording medium has previously been stored is provided and, when one of the plurality of music pieces is selected by the operation, the music title name information of the selected music piece can be immediately displayed by characters. The user who performed the music piece selecting operation, consequently, can soon confirm whether a desired music piece has correctly been accepted to the apparatus or not at the operation time point. Particularly, the above construction is effective because it is possible to know that the apparatus has been correctly remote controlled in the case where the music piece selecting operation had been executed by using the remote control transmitter.

[0040] The second embodiment of the invention will now be described. The embodiment also has the construction and operation shown and described in Figs. 1 to 8 and their descriptions are omitted here. In the case of the second embodiment, the data supplied to the system controller 7 is written into the RAM 13 and a data table is formed in step S6 shown in Fig. 4. As data which is written into the RAM 13, all of the data of the foregoing access information file and karaoke information file can be used. In correspondence to the music piece code of each music piece, it is also possible to write only the music piece data such as at least disc number that is peculiar to the disc, address indicative of the storing position in the disc enclosing section 2 of the disc, location in the disc of the music piece, music title name, singer name, songwriter name, composer name, length of music piece, copyright code, genre of music piece, main theme image of music piece, music piece theme, situation of music piece, special genre of music piece, and the like.

[0041] In the second embodiment, in the case where the user cannot know the name of the music title which he wants to sing or where he wants to sing the music piece according to his feeling or an atmosphere or the like, the music piece selecting operation is not executed but a search key (not shown) of the operating section 15 is operated. When such a search key is operated, the system controller 7 starts the music title name searching operation.

[0042] In the music title name searching operation, as shown in Figs. 10 to 12, the system controller 7 first instructs the display character control circuit 20 to display a classification item table of the music piece classification information which is used for search (step S141). In the example, the classification items of the music piece classification information include: a main theme image, a music piece theme of the music piece, situation of the music piece, and special genre of the music piece included in the intrachapter common information. By supplying a list table of those classification items as data to the display character control circuit 20, a display command is executed. Such list table data can be also provided in a program for the music title name searching operation. The display character control circuit 20 produces the display character data indicative of the classification item table and writes to a predetermined position in the V-RAM. After the display character data has been read out from the V-RAM and converted into the character video image signal, it is supplied to the display 22 through the image synthesizer 21. Therefore, the classification items of the music piece classification information are displayed on the screen of the display 22 as a character image as shown in, for example, Fig. 13. It is also possible to construct the system in a manner such that the image synthesizer 21 can switch between the display of the synthesized image and the display of only the characters and only the characters are displayed in the searching operation.

[0043] The music piece classification information is such information as intrachapter common information which comprises the items in a wide range such as nationality and year and date of the music piece, permission or inhibition of the recording, feasibility of the duet, and feasibility of the automatic control of an external apparatus such as an illumination or the like in addition to the information depending on the contents of the words of music piece. Every item doesn't depend on the language and the music piece can be allocated to either one of a plurality of selection branches existing in the items. A predetermined number of bits are allocated to each item, therefore, each selection branch in the item is encoded by the bit number and the code of the selection branch which has been allocated is added to each music piece. As mentioned above, the music piece classification information is distinguished from the singer name, songwriter name, and composer name which are described by the characters in dependence on the language.

[0044] The system controller 7 judges whether there is a selection input from the operating section 15 or not (step S142). Such a selection input is performed by numerical keys. When the numerical keys are operated, the selection number as one-byte data is held in the above buffer in the operating section 15. When there is the selection number newly held in the buffer, the system controller 7 reads the selection number (step S143) and discriminates whether the read selection number is

equal to "1" or not, namely, it indicates the main theme image and music piece theme of the music piece or not (step S144). When the read selection number doesn't indicate "1", a check is made to see if the selection number is equal to "2" or not, namely, it indicates the situation of music piece or not (step S145). When the read selection number is not equal to "2", a check is made to see if the read selection number is equal to "3" or not, namely, it indicates the special genre of music piece or not (step S146),

[0045] In step S144, when it is judged that the selection number indicative of the main theme image and music piece theme of the music piece has been read, the display of a main theme image selection table of the music piece is instructed to the display character control circuit 20 (step S147). The main theme image of the music piece comprises three selection branches of love, life, and others as shown in Fig. 14. By supplying a list table of those selection branches as data to the display character control circuit 20, the display command is executed. A main theme image selection table of the music piece is displayed as a character video image on the display 22 by an operation similar to the display of the classification item table of the music piece classification information mentioned above.

[0046] After the display of the main theme image selection table of the music piece has been instructed, the system controller 7 judges whether there is a selection input from the operating section 15 or not (step S148). When the key operation is performed, the selection number as one-byte data is held in the buffer in the operating section 15. When there is a selection number which has been newly held in the buffer in the operating section 15, the system controller 7 reads out the selection number as a main theme image A of the music piece (step S149). After that, the display of the music piece theme selection table according to the main theme image A of the music piece is instructed to the display character control circuit 20 (step S150). When the main theme image A of the music piece relates to the code indicative of love, consequently, the first music piece theme selection table is displayed. When it indicates life, the second music piece theme selection table is displayed. When it indicates others, the third music piece theme selection table is displayed. Fig. 15 shows the contents of each music piece theme, namely, selection branches.

[0047] After the display of the music piece theme selection table has been instructed, the system controller 50 discriminates whether there is a selection input from the operating section 15 or not (step S151). The selection input is similarly executed by numerical keys. When the key operation is executed, the selection number is held in the buffer in the operating section 15. When there is a selection number which has been newly held in the buffer, the system controller 7 reads the selection number as a music piece theme B (step S152). Two-byte data AB, therefore, corresponding to the contents

of the main theme image and music piece theme of the music piece is derived.

[0048] In the case where it is judged in step S145 that the selection number indicative of the situation of music piece has been read, the display of a situation selection table of the music piece is instructed to the display character control circuit 20 (step S153). The situation of the music piece comprises selection branches such as Christmas, birthday, valentine's day, and the like as shown in Fig. 16. By supplying a list table of those selection branches as data to the display character control circuit 20, the display command is executed. The situation selection table of the music piece, therefore, is displayed as a character video image on the display 22. After the display of the situation selection table of the music piece has been instructed, the system controller 7 judges whether there is a selection input from the operating section 15 or not (step S154). When there is a selection number which has been newly held in the buffer in the operating section 15, the system controller 7 reads the selection number as a situation C of the music piece (step S155).

[0049] When it is judged in step S146 that the selection number indicative of the special genre of the music piece has been read, the display of a special genre selection table of music pieces is instructed to the display character control circuit 20 (step S156). As shown in Fig. 17, the special genre of music pieces comprises selection branches such as CM song, TV drama main theme song, other theme song, and the like. By supplying a list table of those selection branches as data to the display character control circuit 20, the display command is executed. The special genre selection table of music pieces is displayed as a character video image onto the display 22. After the display of the special genre selection table of music pieces has been instructed, the system controller 7 checks whether there is a selection input from the operating section 15 or not (step S157). When there is a selection number which has been newly held in the buffer in the operating section 15, the system controller 7 reads the selection number as a special genre D of the music piece (step S158).

[0050] After either one of steps S152, S155, and S158 has been executed, the system controller 7 instructs the display character control circuit 20 to display the characters of "Is a classification item of another music piece classification information selected also?" (step S159). In response to such an instruction, the above characters are displayed on the display 22, so that the user responds by a key operation of the operating section 15, for example, Y (yes) or N (no) of the alphabetical key. The system controller 7, accordingly, judges whether there is an input from the operating section 15 or not (step S160). When there is an input from the operating section 15, a check is made to see if the input is affirmative or not (step S161). When the input from the operating section 15 is affirmative, the processing routine is returned to step S141 and the above operation is re-

peated. On the other hand, when the input is negative, the processing routine advances to the next step S162. The numbers A to D corresponding to the classification items of the music piece classification information which are not selected are shown by the initial value "0" as they are.

[0051] In step S162, the system controller 7 searches for the music pieces corresponding to the main theme image A and the music piece theme B of the music piece and to the situation C and special genre D of the music piece from the RAM 13. That is, since the main theme image and the music piece theme of the music piece and the situation and special genre of the music piece have been encoded and written in the RAM 13 every music piece by the installing operation, they are sequentially read out in accordance with a predetermined music piece order. The music pieces such that the main theme image and music piece theme of the music piece are equal to A and B and the situation of the music piece is equal to C and the special genre of the music piece is equal to D are compared and searched for. When there are music pieces in which those data coincide with respect to all items, the codes of such music piece are stored into a memory (not shown) in the system controller 7. The classification items in which the selection number is equal to 0 are ignored. After completion of the searching operation in step S162, a check is made to see if the relevant music pieces exist or not (step S163). As a result of the search, when no music piece code is stored in the system controller 7, the display of the characters of "There is no corresponding music piece." is instructed to the display character control circuit 20 (step S164). On the other hand, when at least one music piece code is stored in the system controller 7, the music title names corresponding to all of the music piece codes stored, namely, the music title names of the corresponding music pieces are read out from the RAM 13 (step S165). Both of the read-out music title names and the music piece codes are supplied as a pair data to the display character control circuit 20 (step S166). Therefore, the display character data indicative of the music piece code and the music title name is produced in the display character control circuit 20 and written at a predetermined position in the V-RAM. The display character data is read out from the V-RAM and converted into the character video image signal. After that, the character video image signal is supplied to the display 22 through the image synthesizer 21. At least one music piece code and its music title name obtained by the search are displayed on the display 22 as a character video image. The display of each table for search and the display of the music piece code and its music title name of the result of the search can be also executed by another display different from the display 22.

[0052] When the user operates a music piece selection key (not shown) of the operating section 15 after the music title name searching operation has been finished as mentioned above, the system controller 7 starts the

music piece selecting operation in a manner similar to the operation mentioned above. The user selects a desired music piece from the music title names displayed on the display 22 by using its music piece code as a music piece selection number. Or, when displaying, it is also possible to allocate the number to each searching music piece and to select a desired music piece on the basis of such a number.

[0053] In the above music title name searching operation, although the user finally selects a desired music piece from the music title names displayed on the display 22, a desired music piece can be also automatically selected on the karaoke reproducing apparatus side. In this case, as shown in Fig. 18, when corresponding music piece exists in step S163, and it is judged that even at least one music piece code has been stored in the memory in the system controller 7, the system controller 7 selects at random one of all of the music piece codes stored in the internal memory (step S171). The selected music piece code is written as a music piece selection number into a selection music piece list table in the RAM 13 (step S172). After that, the processing routine forcibly advances to step S 13 for the above music piece selecting operation. The music title name corresponding to the music piece selection number is read out as information data from the RAM 13. In step S 14, further, the read-out data is supplied to the display character control circuit 20. The music title name as a result of the automatic music piece selection is, consequently, displayed on the display 22, so that the user can confirm the music piece to be sung.

[0054] As another method of searching by a combination of a plurality of items shown in the above embodiment, there is also a method such that a plurality of sets each comprising the contents selected from the selection branches of each of a plurality of items are prepared and the person who wants to select a music piece selects a desired set. For example, as shown in Fig. 19, combinations of the contents which are frequently selected are displayed as sets and the person who wants to select desired music pieces selects a proper set by the number. With this method, the corresponding music pieces can be searched for by a smaller number of operating procedures.

[0055] As further another method of searching by a combination of a plurality of items, there is a method such that selection branches by a classification different from the information regarding the music pieces recorded in the karaoke information file are presented and the contents of the selected branch are searched for in correspondence to the information regarding the music pieces. For example, selection branches as shown in Fig. 20 are presented and when "Wooing song before 1970s" is selected, the system controller 7 searches for the corresponding music piece by using "(2) Year, month, and day of publication of the music piece" and "Declaration of love (man → woman)" of "Love" in "(7) a main theme image of music piece and a theme of mu-

sic piece" in the intrachapter common information in the information regarding the music piece. By directly setting the request contents of the person who wants to select the music piece into the selection branches, as stated above, the music piece which meets the requirements can be more easily searched for.

[0056] By using "(15) Control device information" of the intrachapter common information, the music piece can be searched for by the function. Fig. 21 relates to an example of "(15) Control device information" and shows that one bit corresponds to one external apparatus and, when the value of the bit is equal to "1", the external apparatus corresponding to the bit can be controlled. For example, when searching under a condition such that the music piece in which the illumination control can be performed is searched for, therefore, the system controller 7 searches for the music piece in which the bit 15 is equal to "1" and displays on the display 22 through the display character control circuit 20. In this manner, the person who wants to select a music piece can select a desired music piece from the music pieces in which the target function can be realized.

[0057] In the above example, the intrachapter common information has been used as information that is used to search, however, other information such as singer name, songwriter name, composer name, and the like can be also used solely or as a combination with the intrachapter common information for search.

[0058] By using "(4) Copyright code" of the intrachapter common information, the music pieces, which satisfy the condition such that the music piece can be recorded, can be searched for and it is possible to easily meet the requirement of the user such that he wants to sing the recordable music piece.

[0059] By using "(5) Singer classification" of the intrachapter common information, the music pieces which can satisfy the condition such that the music piece can be sung in duet can be searched for. The user who wants to sing in duet can easily select a desired music piece from the duet music pieces.

[0060] When the music piece has four audio channels, the contents of the two audio subchannels among four channels can be known with reference to "(13) Multiaudio mode" of the intrachapter common information, so that the music piece can be searched for on the basis of the contents of the subchannels. For example, in the case where (karaoke accompaniment) + (vocal of one of the duet) have been recorded in one of the audio subchannels and (karaoke accompaniment) + (vocal of another one of the duet) have been recorded in the other channel, the user selects the reproduction of either one of the audio subchannels, so that he can perform the duet by the recorded vocal sound and the user. By using "(13) Multiaudio mode" as a classification item, the music piece which satisfies the condition such that the music piece can be sung in duet even by one person can be easily searched for.

[0061] In the present invention, the recording medium

on which at least the karaoke playing sounds of a plurality of music pieces have been recorded is not limited to the disc but it will be obviously understood that another recording medium such as a tape or the like can be also used.

[0062] In the karaoke reproducing apparatus according to the second feature of the invention as mentioned above, the apparatus has the memory means in which the music piece classification information of each of the music pieces recorded on the recording medium has previously been stored. An item content selection command to designate the contents of at least one of a plurality of different items included in the music piece classification information is generated in accordance with the operation. The music piece corresponding to the contents of at least one item indicated by the item content selection command is searched for through the memory means. That is, in the case where the user doesn't know the music piece information such as music title name, singer name, or the like of the music piece which he wants to sing, or in the case where the user wants to sing the music piece according to the feeling or atmosphere in that moment, the user can search for a desired music piece. The user, therefore, can enjoy the karaoke in accordance with the result of the search.

Claims

1. A recording medium reproducing apparatus for reproducing sound recorded on a recording medium (5) on which at least sound data of a plurality of music pieces have been recorded, comprising:

means (15) for generating a selection music piece command to select one music piece of said plurality of music pieces in accordance with a selection operation;
 playing means (4) for playing said recording medium (5) with respect to said one music piece according to said selection music piece command;
 a memory (13) for storing music title name information of at least one of said music pieces recorded on said recording medium (5);
 means (7) for reading said music title name information corresponding to said selection music piece command from said memory when said selection music piece command is generated;
 display means (22) for displaying said music title name information read from said memory (13);
 main image video signal generating means (9, 12) for generating a first video signal representing a main image;
 selection table image generating means (20) for generating a second video signal represent-

ing a selection table based on said music title name information; and
 a display control means (21) for synthesizing said first and second video signals to produce a synthesized video signal, and for controlling said display means (22) to display an image represented by said synthesized video signal.

2. A recording medium reproducing apparatus according to claim 1, wherein said music title name information has been recorded on said recording medium (5) and wherein said music title name information is read from said recording medium (5) and stored in said memory (13).

3. A recording medium reproducing apparatus according to claim 1 or 2 wherein said apparatus is a karaoke reproducing apparatus; and
 said sound data represents karaoke playing sounds.

4. A recording medium reproducing apparatus for reproducing sound from a recording medium (5) on which at least sound data of a plurality of music pieces have been recorded, the apparatus reproducing a playing sound of a selected music piece of said plurality of music pieces by playing the recording medium (5), wherein said apparatus comprises:

memory means (13) for storing music piece classification information of each of said plurality of music pieces recorded on said recording medium (5) wherein said music piece classification information represents at least one characteristic of each of said plurality of music pieces;
 instructing means (15) for generating an item content selection command to designate the contents of at least one of a plurality of different items included in said music piece classification information in accordance with a selection operation;
 display means (22);
 searching means (7) for searching for the music piece corresponding to the contents of said at least one item indicated by said item content selection command from said memory means;
 main image video signal generating means (9, 12) for generating a first video signal representing a main image;
 selection table image generating means (20) for generating a second video signal representing a selection table based on said music selection classification information; and
 a display control means (21) for synthesizing said first and second video signals to produce a synthesized video signal, and for controlling

said display means (22) to display an image represented by said synthesized video signal.

5. A recording medium reproducing apparatus according to claim 4, wherein said display means (22) displays a music title name of the music piece which has been searched for by said searching means.

6. A recording medium reproducing apparatus according to claim 4 or 5, further comprising playing means (4) for playing said recording medium (5) with respect to the music piece which has been searched for by said searching means.

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7. A recording medium reproducing apparatus according to claim 4, 5 or 6, wherein said instructing means (15) generates said item content selection command based on a plurality of selection operations, wherein said plurality of selection operations respectively select at least two items among the different items in said music piece classification information.

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8. A recording medium reproducing apparatus according to any of claims 4 to 7, wherein said instructing means (15) generates said item content selection command based on a selection item which represents a classification of said plurality of music pieces that is different from classifications contained in the music piece classification information.

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9. A recording medium reproducing apparatus according to any of claims 4 to 8, wherein the music piece classification information of each of said music pieces is recorded on said recording medium (5), and wherein the music piece classification information of each of said music pieces is previously read from the recording medium (5) and stored in said memory means (13) before said selection is performed.

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10. A recording medium reproducing apparatus according to any of claims 4 to 9 wherein said music piece classification information is recorded on said recording medium (5) in the form of code data.

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11. A recording medium reproducing apparatus according to any of claims 4 to 10, wherein said apparatus is a karaoke reproducing apparatus; and said sound data represents karaoke playing sounds.

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12. A recording medium reproducing apparatus as claimed in claim 1, wherein said display control means is operative to select one of said image represented by said synthesized video signal and an image composed solely of letters as an image displayed by said display means.

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13. A recording medium reproducing apparatus as claimed in claim 4, wherein said display control means is operative to select one of said image represented by said synthesized video signal and an image composed solely of letters as an image displayed by said display means.

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14. A recording medium reproducing apparatus as claimed in claim 4, wherein said display control means is operative to supply an image representing only letters to said display means when said searching means is in operation.

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15. Patentansprüche

1. Aufzeichnungsmedium-Wiedergabevorrichtung zum Wiedergeben von Klang, der auf ein Aufzeichnungsmedium (5) aufgezeichnet worden ist, auf das wenigstens Klangdaten mehrerer Musikstücke aufgezeichnet worden sind, wobei die Vorrichtung umfaßt:

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Mittel (15) zum Erzeugen eines Musikstück-Auswahlbefehls, um eines der mehreren Musikstücke in Übereinstimmung mit einer Auswahloperation auszuwählen; Abspielmittel (4) zum Abspielen des Aufzeichnungsmediums (5) in bezug auf dieses eine Musikstück in Übereinstimmung mit dem Musikstück-Auswahlbefehl; einen Speicher (13) zum Speichern von Musiktitel-Nameninformationen wenigstens eines der Musikstücke, die auf das Aufzeichnungsmedium (5) aufgezeichnet worden sind; Mittel (7) zum Lesen der Musiktitel-Nameninformationen, die dem Musikstück-Auswahlbefehl entsprechen, aus dem Speicher, wenn der Musikstück-Auswahlbefehl erzeugt wird; Anzeigemittel (22) zum Anzeigen der aus dem Speicher (13) gelesenen Musiktitel-Nameninformationen; Hauptbild-Videosignalzeugungsmittel (9, 12) zum Erzeugen eines ersten Videosignals, das ein Hauptbild darstellt; Auswahltabellen-Bilderzeugungsmittel (20) zum Erzeugen eines zweiten eine Auswahltabl. darstellenden Videosignals auf der Grundlage der Musiktitel-Nameninformationen; und Anzeigesteuermittel (21) zum Synthesisieren der ersten und zweiten Videosignale, um ein synthetisiertes Videosignal zu erzeugen, und zum Steuern der Anzeigemittel (22), damit sie ein Bild anzeigen, das durch das synthetisierte Videosignal dargestellt wird.

2. Aufzeichnungsmedium-Wiedergabevorrichtung

nach Anspruch 1, bei der die Musiktitel-Nameninformationen auf das Aufzeichnungsmedium (5) aufgezeichnet worden sind und bei der die Musiktitel-Nameninformationen aus dem Aufzeichnungsmedium (5) gelesen und im Speicher (13) gespeichert werden.

3. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 1 oder 2, wobei die Vorrichtung eine Karaoke-Wiedergabevorrichtung ist; und die Klangdaten Karaoke-Spielklänge darstellen.

4. Aufzeichnungsmedium-Wiedergabevorrichtung zum Wiedergeben von Klang von einem Aufzeichnungsmedium (5), auf das wenigstens Klangdaten mehrerer Musikstücke aufgezeichnet worden sind, wobei die Vorrichtung einen abgespielten Klang bzw. Abspielklang eines ausgewählten Musikstücks der mehreren Musikstücke wiedergibt, indem es das Aufzeichnungsmedium (5) abspielt, wobei die Vorrichtung aufweist:

Speicher (13) zum Speichern von Musikstück-Klassifizierungsinformationen jedes der mehreren Musikstücke, die auf das Aufzeichnungsmedium (5) aufgezeichnet worden sind, wobei die Musikstück-Klassifizierungsinformationen wenigstens eine Eigenschaft jedes der mehreren Musikstücke darstellen;

Befehlsmittel (15) zum Erzeugen eines Elementinhalt-Auswahlbefehls, um die Inhalte wenigstens eines von mehreren verschiedenen Elementen zu bezeichnen, die in den Musikstück-Klassifizierungsinformationen enthalten sind, in Übereinstimmung mit einer Auswahloperation;

Anzeigemittel (22);

Suchmittel (7) zum Suchen des Musikstücks, das den durch den Elementinhalt-Auswahlbefehl angegebenen Inhalten des wenigstens einen Elements entspricht, in den Speichermitteln;

Hauptbild-Videosignalerzeugungsmittel (9, 12) zum Erzeugen eines ersten Videosignals, das ein Hauptbild darstellt;

Auswahltabellen-Bilderzeugungsmittel (20) zum Erzeugen eines zweiten eine Auswahltafel darstellenden Videosignals auf der Grundlage der Musikauswahl-Klassifizierungsinformationen; und

Anzeigesteuermittel (21) zum Synthetisieren der ersten und zweiten Videosignale, um ein synthetisiertes Videosignal zu erzeugen, und zum Steuern der Anzeigemittel (22), um ein Bild anzuzeigen, das durch das synthetisierte Videosignal dargestellt wird.

5. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 4, bei der die Anzeigemittel (22) einen Musiktitel-Namen des Musikstücks anzeigen, das von den Suchmitteln gesucht worden ist.

6. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 4 oder 5, die ferner Abspielmittel (4) umfaßt, die das Aufzeichnungsmedium (5) in bezug auf das Musikstück abspielen, das durch die Suchmittel gesucht worden ist.

7. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 4, 5 oder 6, bei der die Befehlsmittel (15) den Elementinhalt-Auswahlbefehl auf der Grundlage mehrerer Auswahloperationen erzeugen, wobei die mehreren Auswahlbefehle jeweils wenigstens zwei Elemente aus verschiedenen Elementen in den Musikstück-Klassifizierungsinformationen auswählen.

8. Aufzeichnungsmedium-Wiedergabevorrichtung nach einem der Ansprüche 4 bis 7, bei der die Befehlsmittel (15) den Elementinhalt-Auswahlbefehl auf der Grundlage eines Auswahlelements erzeugen, das eine Klassifizierung der mehreren Musikstücke darstellt, die von in den Musikstück-Klassifizierungsinformationen enthaltenen Klassifizierungen verschieden ist.

9. Aufzeichnungsmedium-Wiedergabevorrichtung nach einem der Ansprüche 4 bis 8, bei der die Musikstück-Klassifizierungsinformationen jedes der Musikstücke auf das Aufzeichnungsmedium (5) aufgezeichnet werden und bei der die Musikstück-Klassifizierungsinformationen jedes der Musikstücke im voraus aus dem Aufzeichnungsmedium (5) gelesen und in den Speichermitteln (13) gespeichert werden, bevor die Auswahl erfolgt.

10. Aufzeichnungsmedium-Wiedergabevorrichtung nach einem der Ansprüche 4 bis 9, bei der die Musikstück-Klassifizierungsinformationen auf das Aufzeichnungsmedium (5) in Form codierter Daten aufgezeichnet werden.

11. Aufzeichnungsmedium-Wiedergabevorrichtung nach einem der Ansprüche 4 bis 10, wobei die Vorrichtung eine Karaoke-Wiedergabevorrichtung ist; und die Klangdaten Karaoke-Abspielklänge darstellen.

12. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 1, bei der die Anzeigesteuermittel in der Weise arbeiten, daß sie entweder das Bild, das durch das synthetisierte Videosignal dargestellt wird, oder ein Bild, das nur aus Buchstaben gebildet

ist, als ein Bild auswählen, das durch die Anzeigemittel angezeigt wird.

13. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 4, bei der die Anzeigemittel in der Weise arbeiten, daß sie entweder das Bild, das durch das synthetisierte Videosignal dargestellt wird, oder ein Bild, das nur aus Buchstaben gebildet ist, als ein Bild auswählen, das durch die Anzeigemittel angezeigt wird.

14. Aufzeichnungsmedium-Wiedergabevorrichtung nach Anspruch 4, bei der die Anzeigemittel in der Weise arbeiten, daß sie ein Bild, das nur Buchstaben darstellt, an die Anzeigemittel liefern, wenn die Suchmittel in Betrieb sind.

Revendications

1. Appareil de reproduction à support d'enregistrement pour reproduire un son enregistré sur un support d'enregistrement (5) sur lequel au moins des données de son d'une pluralité de morceaux de musique ont été enregistrées, comprenant:

un moyen (15) pour générer une sélection d'un ordre de morceau de musique pour sélectionner un morceau de musique de ladite pluralité de morceaux de musique en fonction d'une opération de sélection ;
 un moyen de jeu (4) pour jouer ledit support d'enregistrement (5) par rapport audit un morceau de musique en fonction de ladite sélection d'ordre de morceau de musique ;
 une mémoire (13) pour stocker une information de nom de titre de musique d'au moins l'un desdits morceaux de musique enregistrés sur ledit support d'enregistrement (5) ;
 un moyen (7) pour lire ladite information de nom de titre de musique correspondant à ladite sélection d'ordre de morceau de musique à partir de ladite mémoire lorsque ladite sélection d'ordre de morceau de musique est générée ;
 un moyen (22) d'affichage pour afficher ladite information de nom de titre de musique, lue à partir de ladite mémoire (13) ;
 un moyen (9, 12) de génération de signal vidéo d'image principale pour générer un premier signal vidéo représentant une image principale ;
 un moyen (20) de génération d'image de table de sélection pour générer un deuxième signal vidéo représentant une table de sélection sur la base de ladite information de nom de titre de musique ; et
 un moyen (21) de commande d'affichage pour synthétiser lesdits premier et deuxième signaux vidéo pour produire un signal vidéo syn-

thétisé, et pour commander ledit moyen (22) d'affichage pour afficher une image représentée par ledit signal vidéo synthétisé.

5 2. Appareil de reproduction à support d'enregistrement selon la revendication 1, dans lequel ladite information de nom de titre de musique a été enregistrée sur ledit support d'enregistrement (5) et dans lequel ladite information de nom de titre de musique est lue à partir dudit support (5) d'enregistrement et stockée dans ladite mémoire (13).

10 3. Appareil de reproduction à support d'enregistrement selon la revendication 1 ou 2, dans lequel ledit appareil est un appareil de reproduction karaoké, et lesdites données de son représentent des sons de jeu karaoké.

15 4. Appareil de reproduction à support d'enregistrement pour reproduire un son à partir d'un support d'enregistrement (5) sur lequel au moins des données de sons d'une pluralité de morceaux de musique ont été enregistrées, l'appareil reproduisant un son de jeu d'un morceau de musique sélectionné de ladite pluralité de morceaux de musique par jeu du support d'enregistrement (5), dans lequel ledit appareil comprend :

20 un moyen (13) formant mémoire pour stocker une information de classification de morceau de musique de chacun de ladite pluralité de morceaux de musique enregistrés sur ledit support d'enregistrement (5), ladite information de classification de morceau de musique représentant au moins une caractéristique de chacun de ladite pluralité de morceaux de musique ;

25 un moyen (15) d'instruction pour générer un ordre de sélection de contenu d'élément pour désigner le contenu d'au moins l'un d'une pluralité d'éléments différents inclus dans ladite information de classification de morceau de musique en fonction d'une opération de sélection ;

30 un moyen (22) d'affichage ;
 un moyen (7) de recherche pour rechercher le morceau de musique correspondant au contenu dudit au moins un élément indiqué par ledit ordre de sélection de contenu d'élément en provenance dudit moyen formant mémoire ;

35 un moyen (9, 12) de génération de signal vidéo d'image principale pour générer un premier signal vidéo représentant une image principale ;
 un moyen (20) de génération d'image de table de sélection pour générer un deuxième signal vidéo représentant une table de sélection sur la base de ladite information de classification de sélection de musique ; et

40 un moyen (21) de commande d'affichage pour

45

50

55

synthétiser lesdits premier et deuxième signaux vidéo pour produire un signal vidéo synthétisé, et pour commander ledit moyen (22) d'affichage pour afficher une image représentée par ledit signal vidéo synthétisé.

5. Appareil de reproduction à support d'enregistrement selon la revendication 4, dans lequel ledit moyen (22) d'affichage affiche un nom de titre de musique du morceau de musique qui a été recherché par ledit moyen de recherche.

10. 6. Appareil de reproduction à support d'enregistrement selon la revendication 4 ou 5, comprenant en outre un moyen (4) de jeu pour jouer ledit support d'enregistrement (5) par rapport au morceau de musique qui a été recherché par ledit moyen de recherche.

15. 7. Appareil de reproduction à support d'enregistrement selon la revendication 4, 5 ou 6, dans lequel ledit moyen (15) d'instruction génère ledit ordre de sélection de contenu d'élément sur la base d'une pluralité d'opérations de sélection, ladite pluralité d'opérations de sélection sélectionnant respectivement au moins deux éléments parmi les différents éléments dans ladite information de classification de morceau de musique.

20. 8. Appareil de reproduction à support d'enregistrement selon l'une quelconque des revendications 4 à 7, dans lequel ledit moyen (15) d'instruction génère ledit ordre de sélection de contenu d'élément sur la base d'un élément de sélection qui représente une classification de ladite pluralité de morceaux de musique, qui est différente des classifications contenues dans l'information de classification de morceau de musique.

25. 9. Appareil de reproduction à support d'enregistrement selon l'une quelconque des revendications 4 à 8, dans lequel l'information de classification de morceau de musique de chacun desdits morceaux de musique est enregistrée sur ledit support d'enregistrement (5), et

30. dans lequel l'information de classification de morceau de musique de chacun desdits morceaux de musique est lue au préalable à partir du support d'enregistrement (5) et stockée dans ledit moyen (13) formant mémoire avant que ladite sélection soit effectuée.

35. 40. 10. Appareil de reproduction à support d'enregistrement selon l'une quelconque des revendications 4 à 9, dans lequel ladite information de classification de morceau de musique est enregistrée sur ledit support d'enregistrement (5) sous la forme de données de code.

45. 50. 55. 11. Appareil de reproduction à support d'enregistrement selon l'une quelconque des revendications 4 à 10, dans lequel ledit appareil est un appareil de reproduction karaoké ; et

5. lesdites données de son représentent des sons de jeu karaoké.

12. Appareil de reproduction à support d'enregistrement selon la revendication 1, dans lequel ledit moyen de commande d'affichage est opérationnel pour sélectionner l'une de ladite image représentée par ledit signal vidéo synthétisé et d'une image composée uniquement de lettres en tant qu'image affichée par ledit moyen d'affichage.

13. Appareil de reproduction à support d'enregistrement selon la revendication 4, dans lequel ledit moyen de commande d'affichage est opérationnel pour sélectionner l'une de ladite image représentée par ledit signal vidéo synthétisé et d'une image composée uniquement de lettres en tant qu'image affichée par ledit moyen d'affichage.

14. Appareil de reproduction à support d'enregistrement selon la revendication 4, dans lequel ledit moyen de commande d'affichage est opérationnel pour appliquer une image représentant uniquement des lettres audit moyen d'affichage lorsque ledit moyen de recherche est un fonctionnement.

FIG. 1

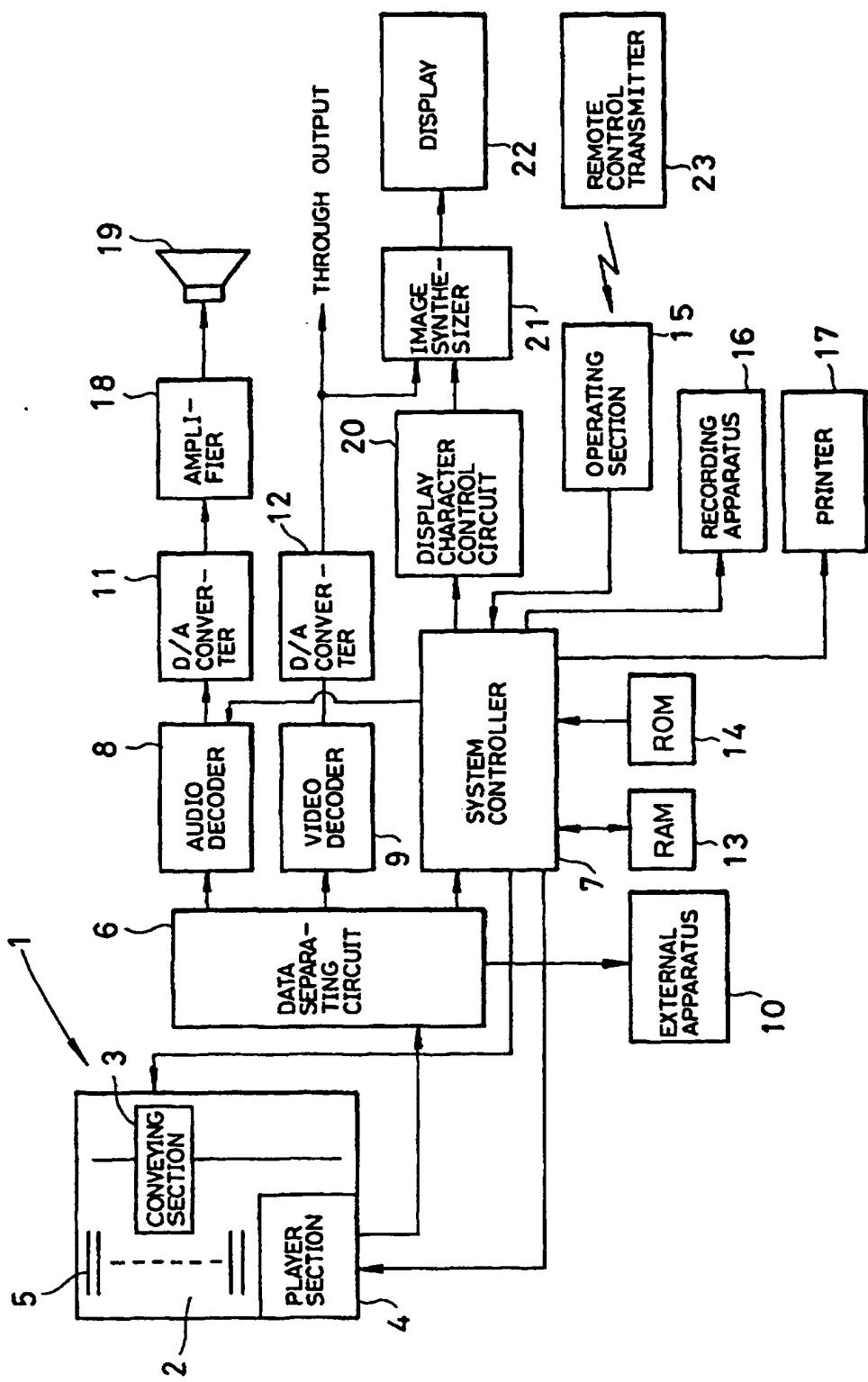


FIG. 2

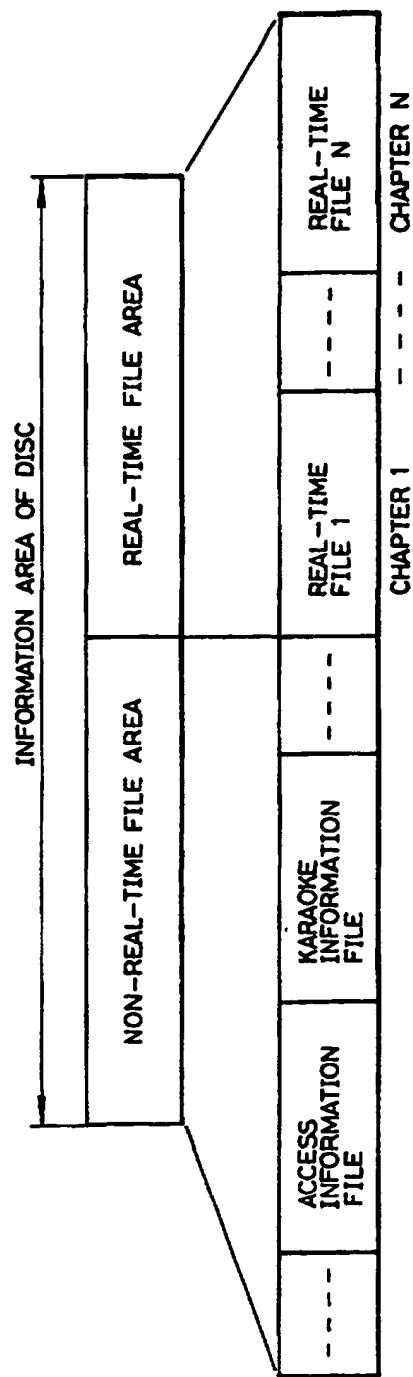


FIG. 3

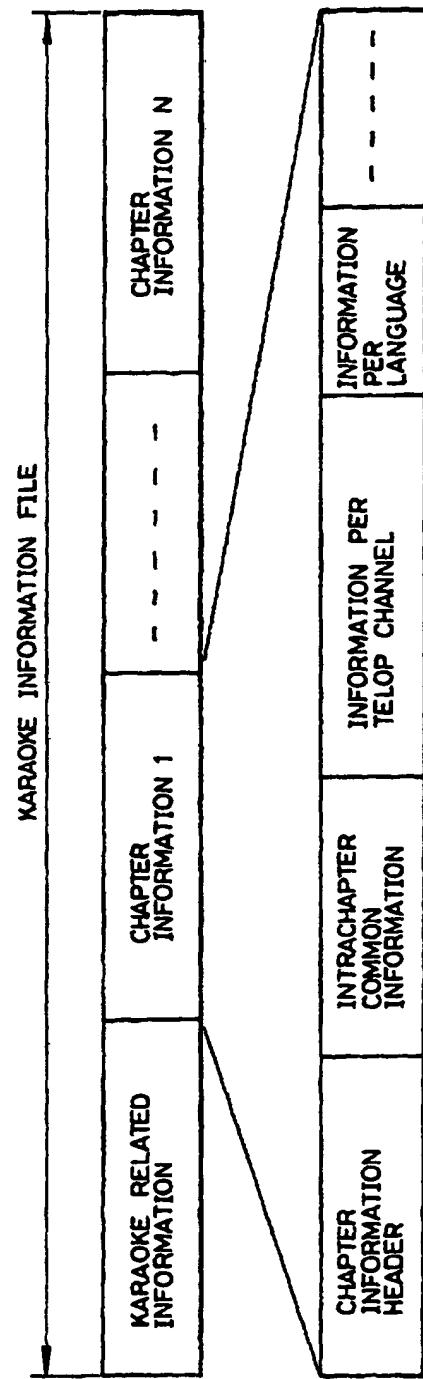


FIG. 4

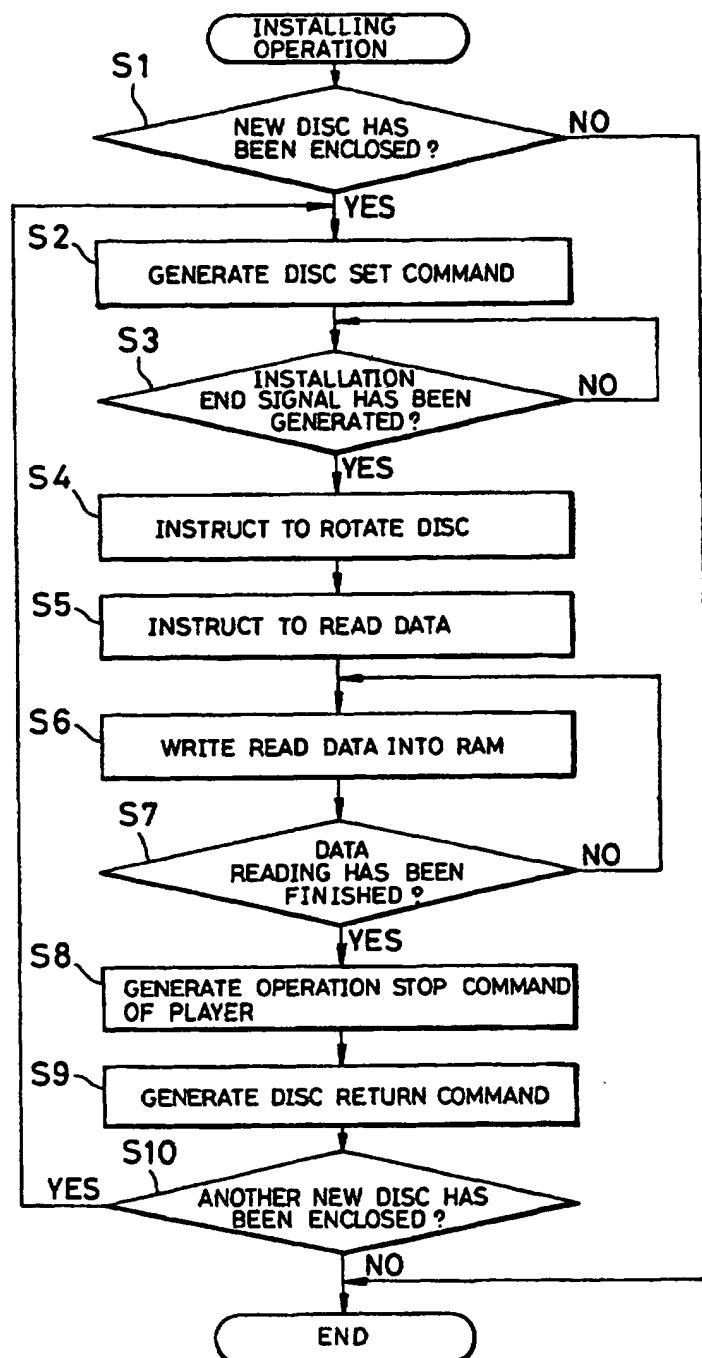


FIG.5

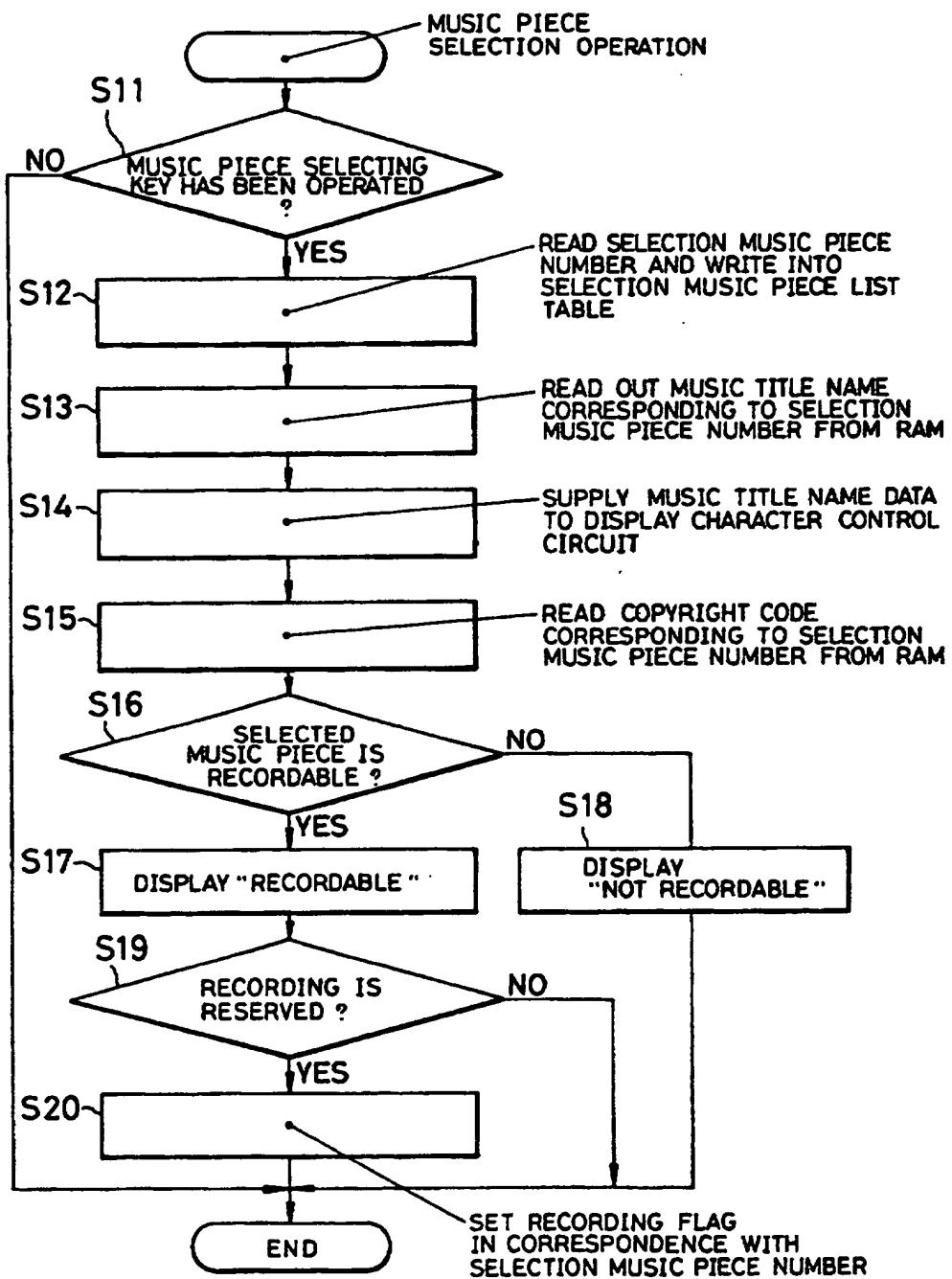


FIG. 6

PLAYING ORDER	MUSIC PIECE SELECTION NUMBER	RECORDING FLAG
1	7 6 0 4	0
2	1 2 1 0	1
3	3 4 0 6	1
4	5 4 1 2	0
.	.	.
.	.	.
.	.	.
.	.	.
.	.	.

FIG. 7

COPYRIGHT CODE	COPYRIGHT OWNER'S NAME	PERMISSION OR INHIBITION OF RECORDING
0	NOTE	1
1	COMPANY A	1
2	COMPANY B	1
3	COMPANY C	0
4	COMPANY D	1
5	COMPANY E	0

FIG. 8

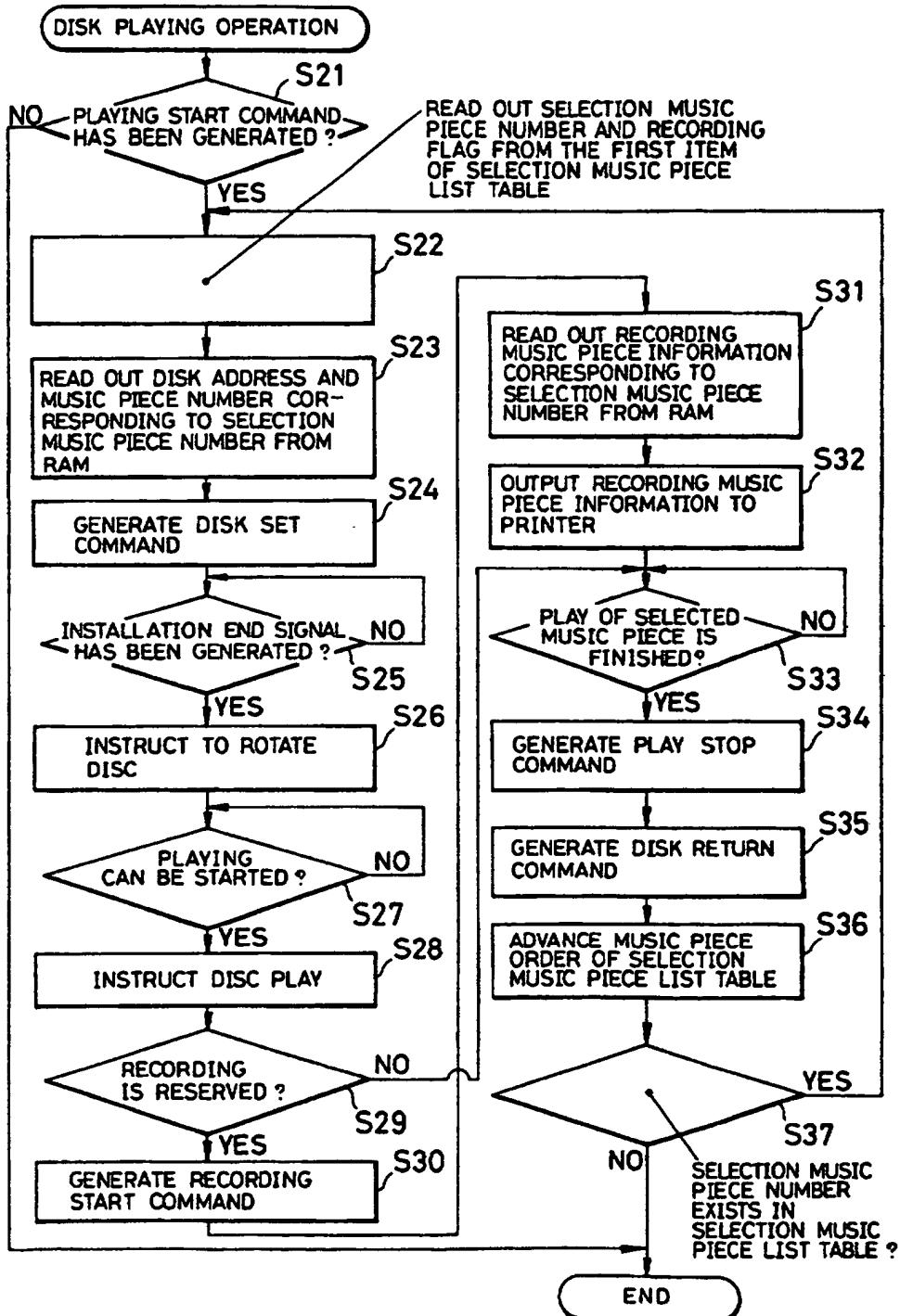


FIG.9

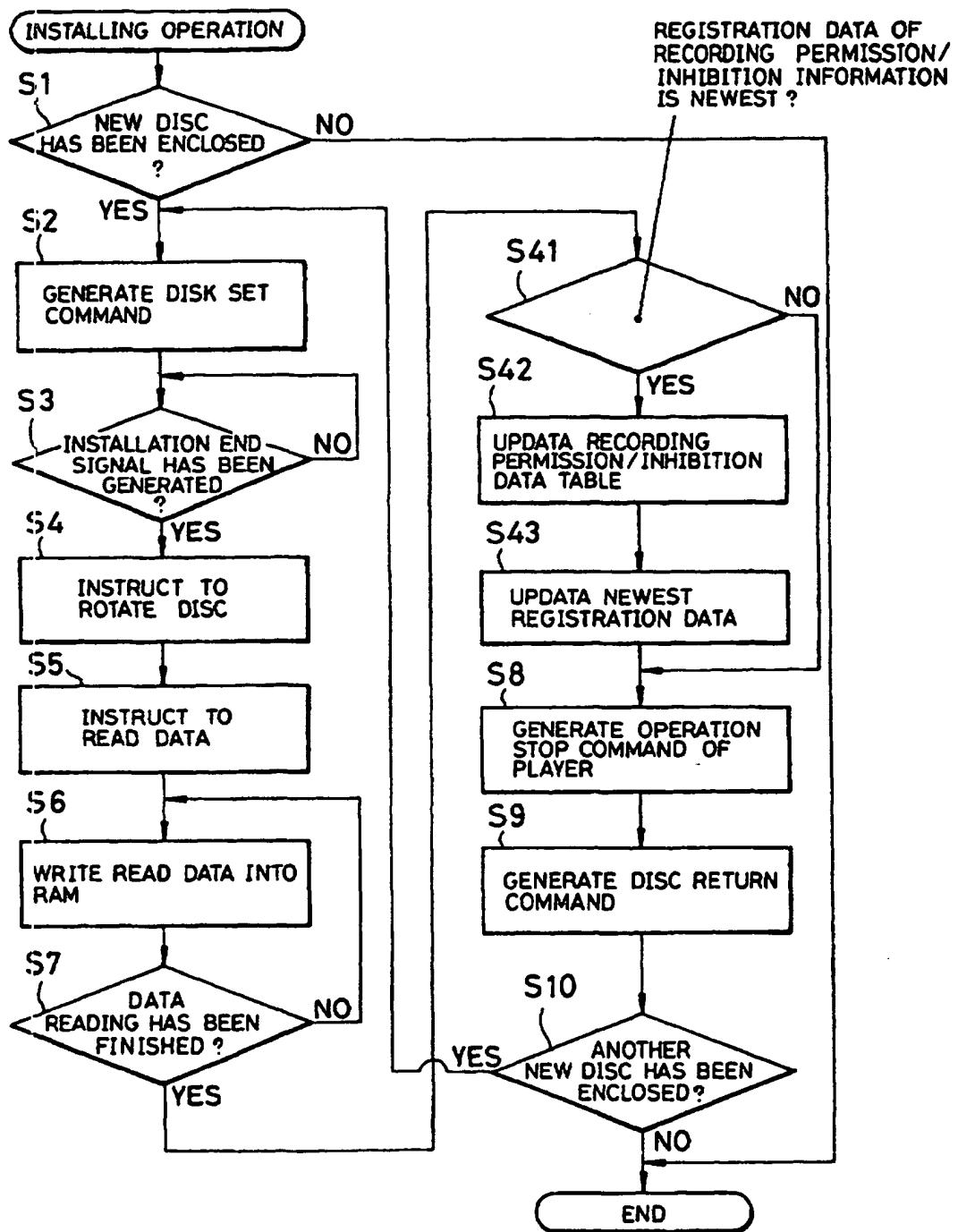


FIG.10

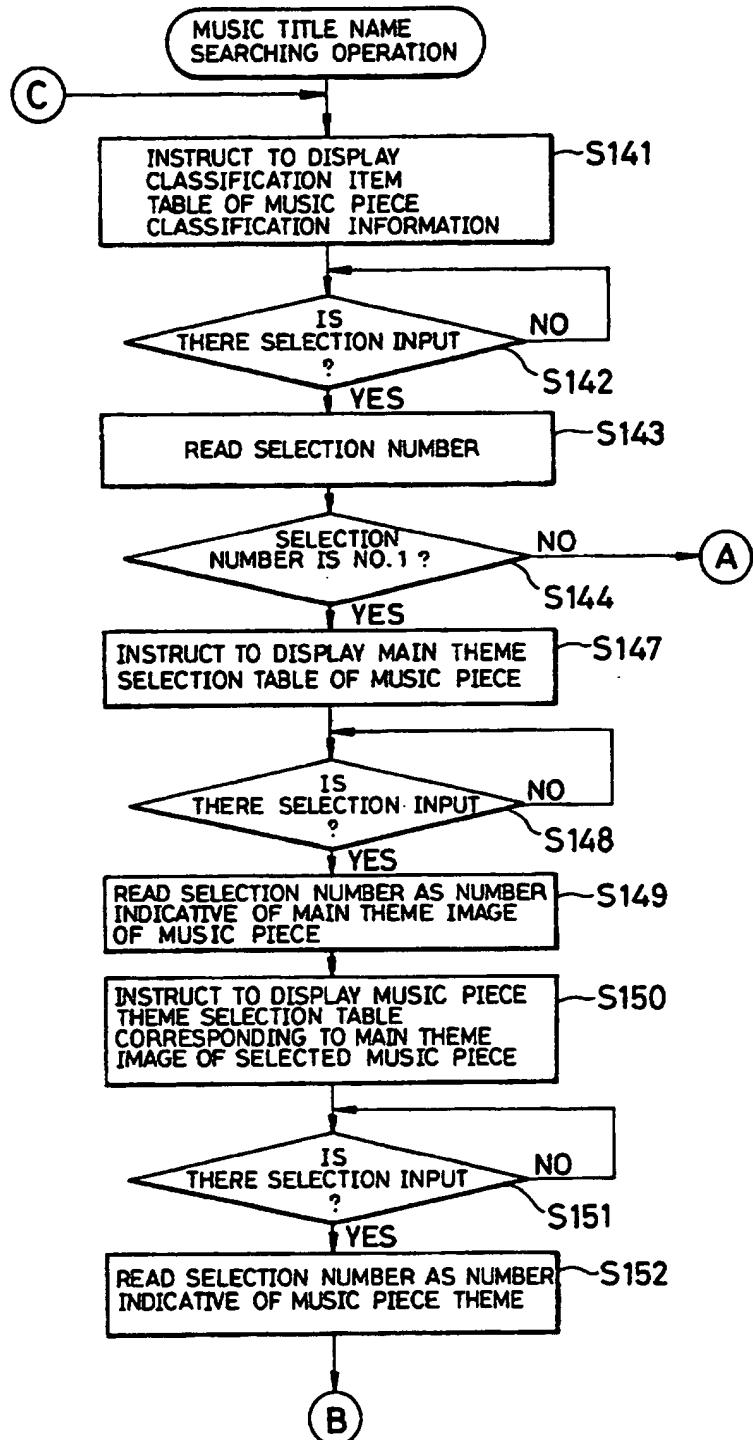


FIG. 11

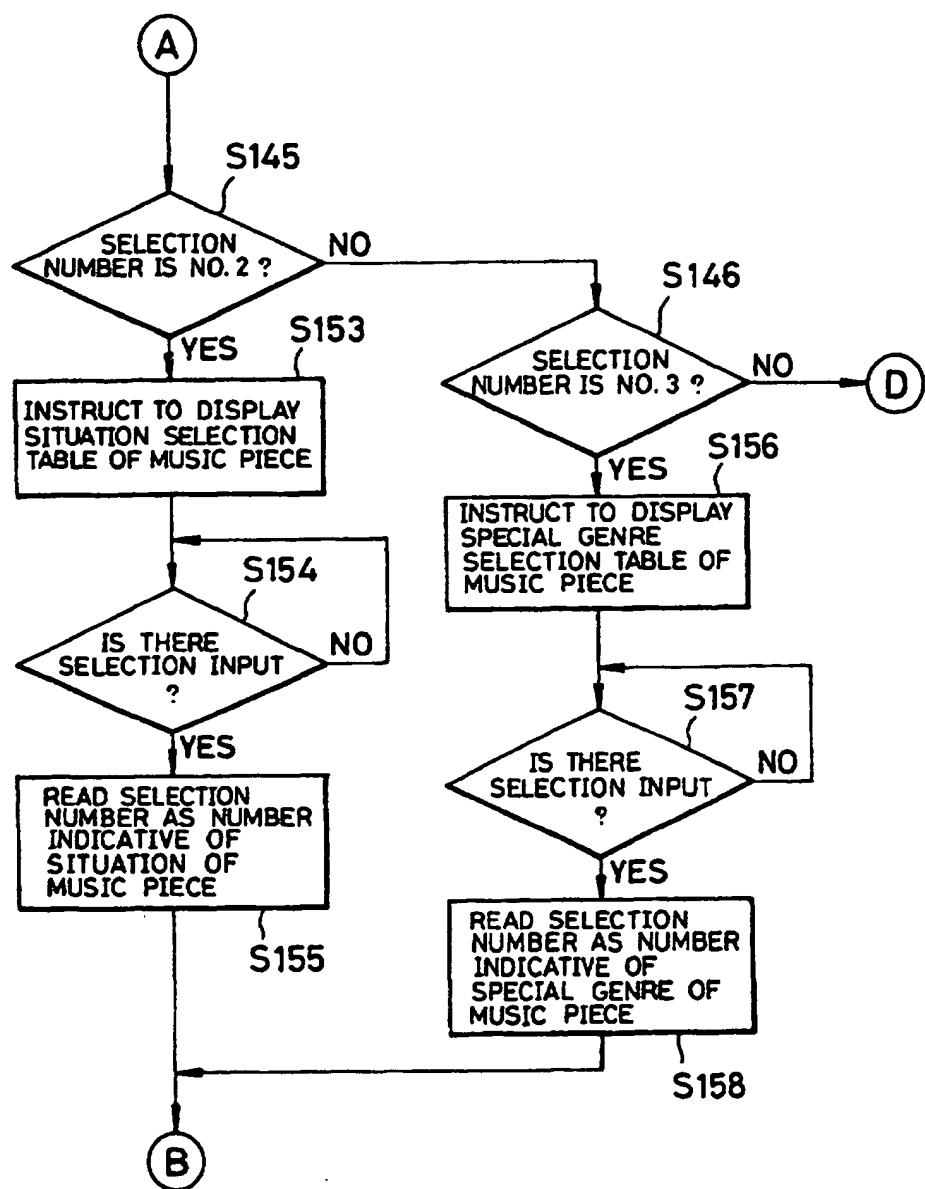


FIG.12

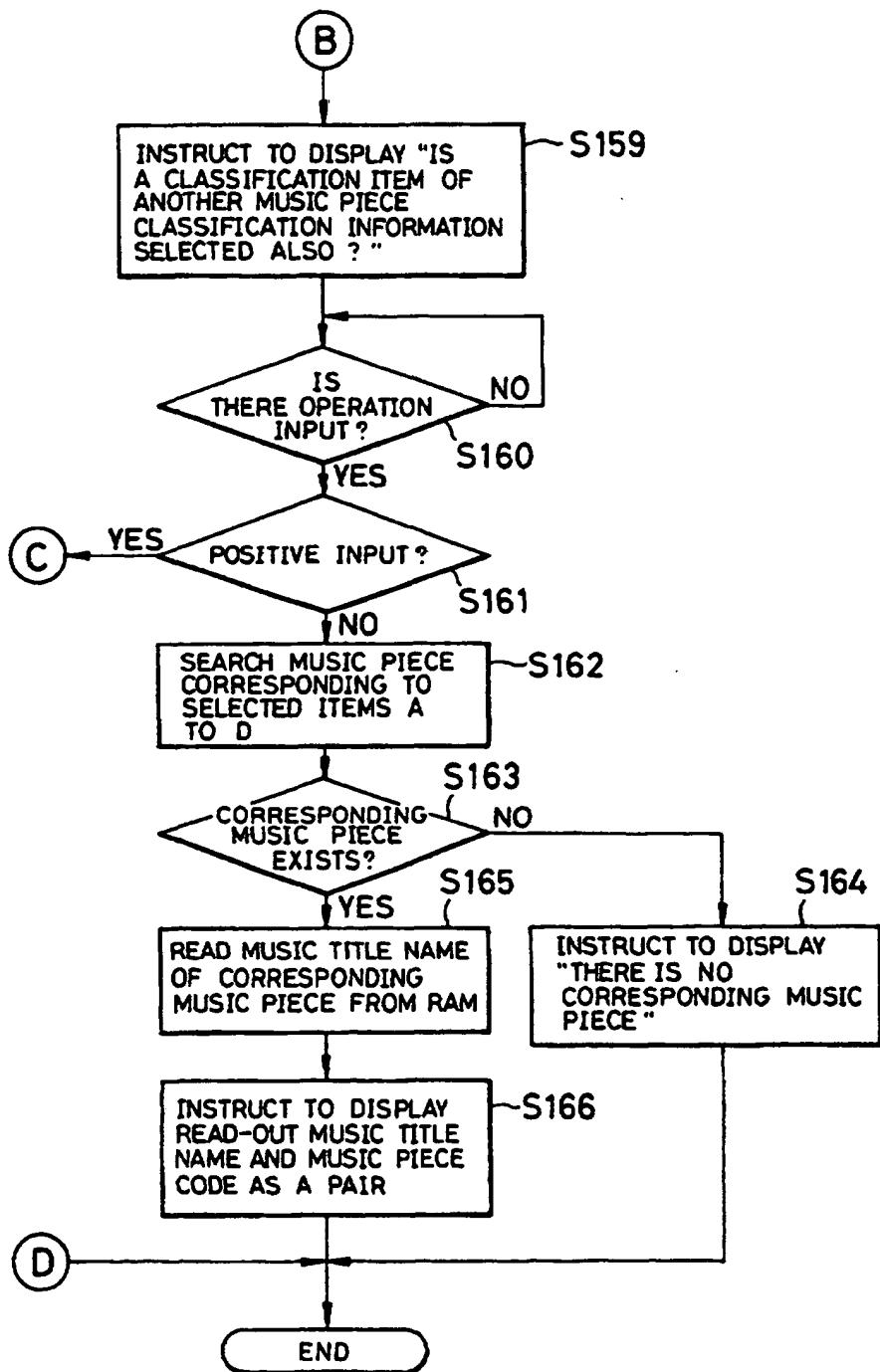


FIG. 13

SELECTION CLASSIFICATION	
1. MAIN THEME IMAGE OF MUSIC PIECE AND MUSIC PIECE THEME	
2. SITUATION OF MUSIC PIECE	
3. SPECIAL GENRE OF MUSIC PIECE	
4. END	
22	~
SELECT BY NUMBER	

FIG. 14

MAIN THEME IMAGE OF MUSIC PIECE	
CONTENTS	SELECTION NUMBER
LOVE	1
LIFE	2
OTHERS	3

FIG.15

MAIN THEME IMAGE	MUSIC PIECE THEME	
	CONTENTS	SELECTION NUMBER
LOVE	ILICIT LOVE (LIAISON, ETC)	1
	UNRETURNED LOVE (MAN → WOMAN)	2
	UNRETURNED LOVE (WOMAN → MAN)	3
	LOST LOVE (HEATBURNING, ANGER)	4
	LOST LOVE (RELUCTANCE, REGRET)	5
	DECLARATION OF LOVE (MAN → WOMAN)	6
	DECLARATION OF LOVE (WOMAN → MAN)	7
	MUTUAL LOVE (HAPPINESS)	8
	ENCOUNTER	9
	SEPARATION	10
LIFE	·	·
	TRAVEL	1
	ALCOHOL	2
	MARRIED COUPLE	3
	PARENT AND CHILD	4
	BROTHER AND SISTER	5
	HOME TOWN	6
	MEMORY	7
	DREAM	8
	JOY OF LIFE	9
OTHERS	SADNESS (BITTERNESS) OF LIFE	10
	·	·
OTHERS	WAR	1
	OTHERS	2

FIG.16

SITUATION OF MUSIC PIECE	
CONTENTS	SELECTION NUMBER
CHRISTMAS	1
BIRTHDAY	2
VALENTINE'S DAY	3
MARRIAGE , PROPOSAL	4
GRADUATION	5
BAR , PUB RESTAURANT	6
TRAIN , SHIP , AIRPLANE	7
HARBOR , STATION , AIRPORT	8
INN , HOTEL	9
TRIP	10
⋮	⋮

FIG.17

SPECIAL GENRE OF MUSIC PIECE	
CONTENTS	SELECTION NUMBER
CM SONG	1
TV DRAMA MAIN THEME SONG	2
OTHER THEME SONG	3

FIG.18

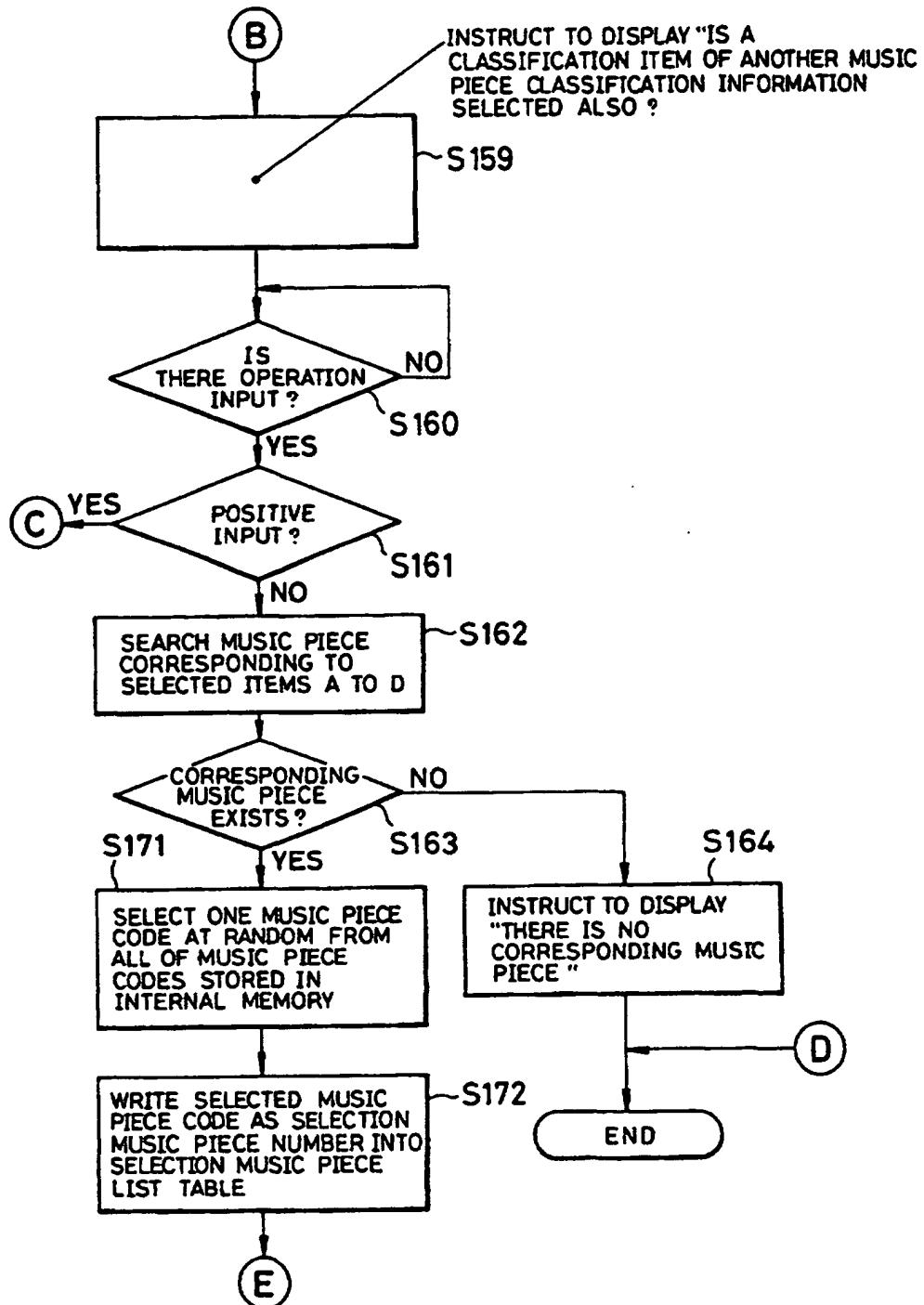


FIG.19

CONTENTS	SELECTION NUMBER
NEW MUSIC • LOST LOVE	1
ENKA • HOME TOWN	2
POPS • SEA	3
⋮	⋮

FIG.20

CONTENTS	SELECTION NUMBER
WOONG SONG BEFORE 1970s	1
WOONG SONG 1980s	2
WOONG SONG 1990s	3
NEWEST CM SONG, TV DRAMA MAIN THEME SONG	4
MOMENTARY BIG HIT SONG	5
⋮	⋮

FIG.21

BIT NO.	CONTROL APPARATUS
15	ILLUMINATION CONTROL APPARATUS
14	VIDEO EFFECT APPARATUS, CAMERA CONTROL APPARATUS
13	SMOKE APPARATUS
12	SOAP BUBBLE GENERATING APPARATUS
11	AUDIO PROCESSING APPARATUS
10 ~ 0	NOT DEFINED

FIG. 22

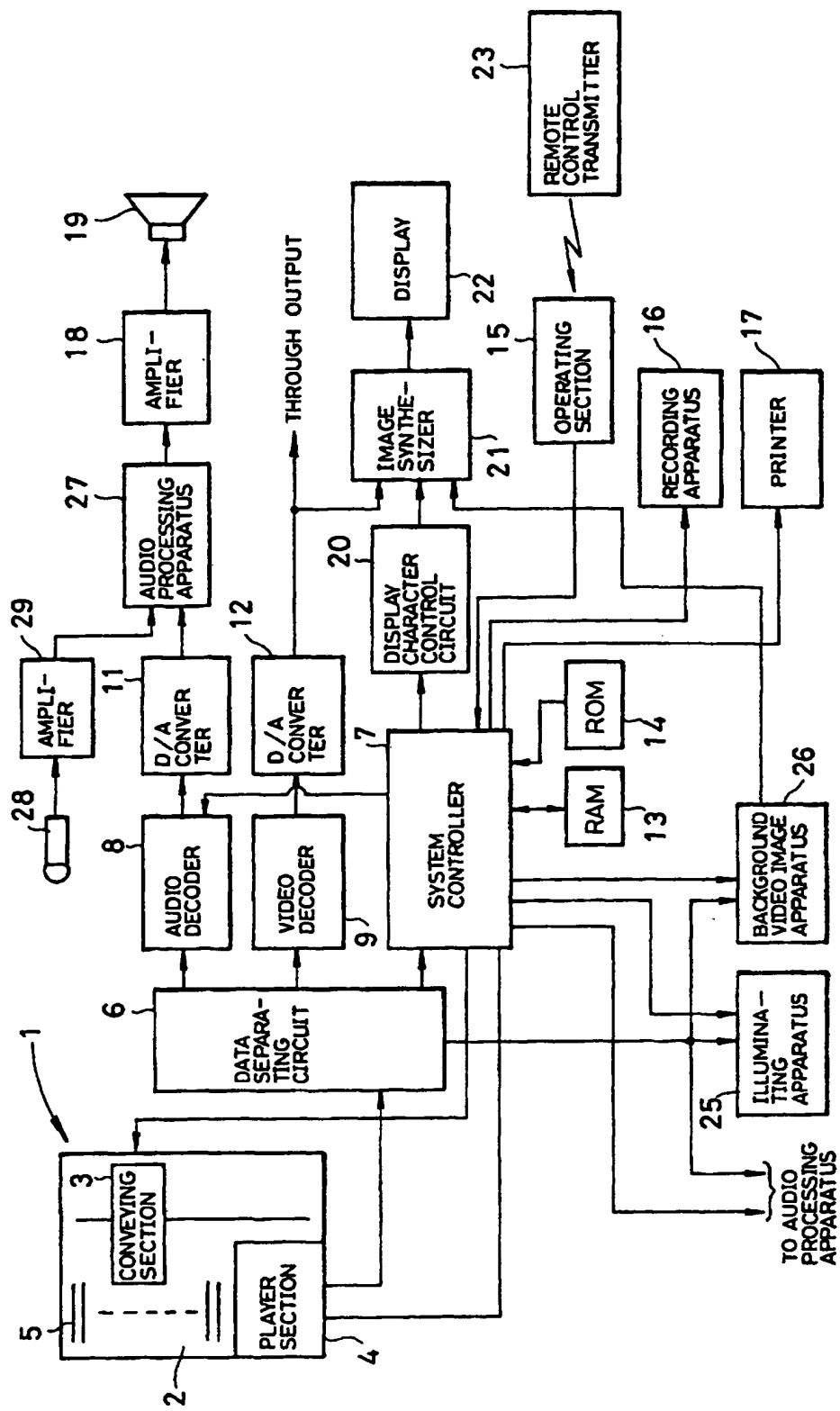


FIG. 23

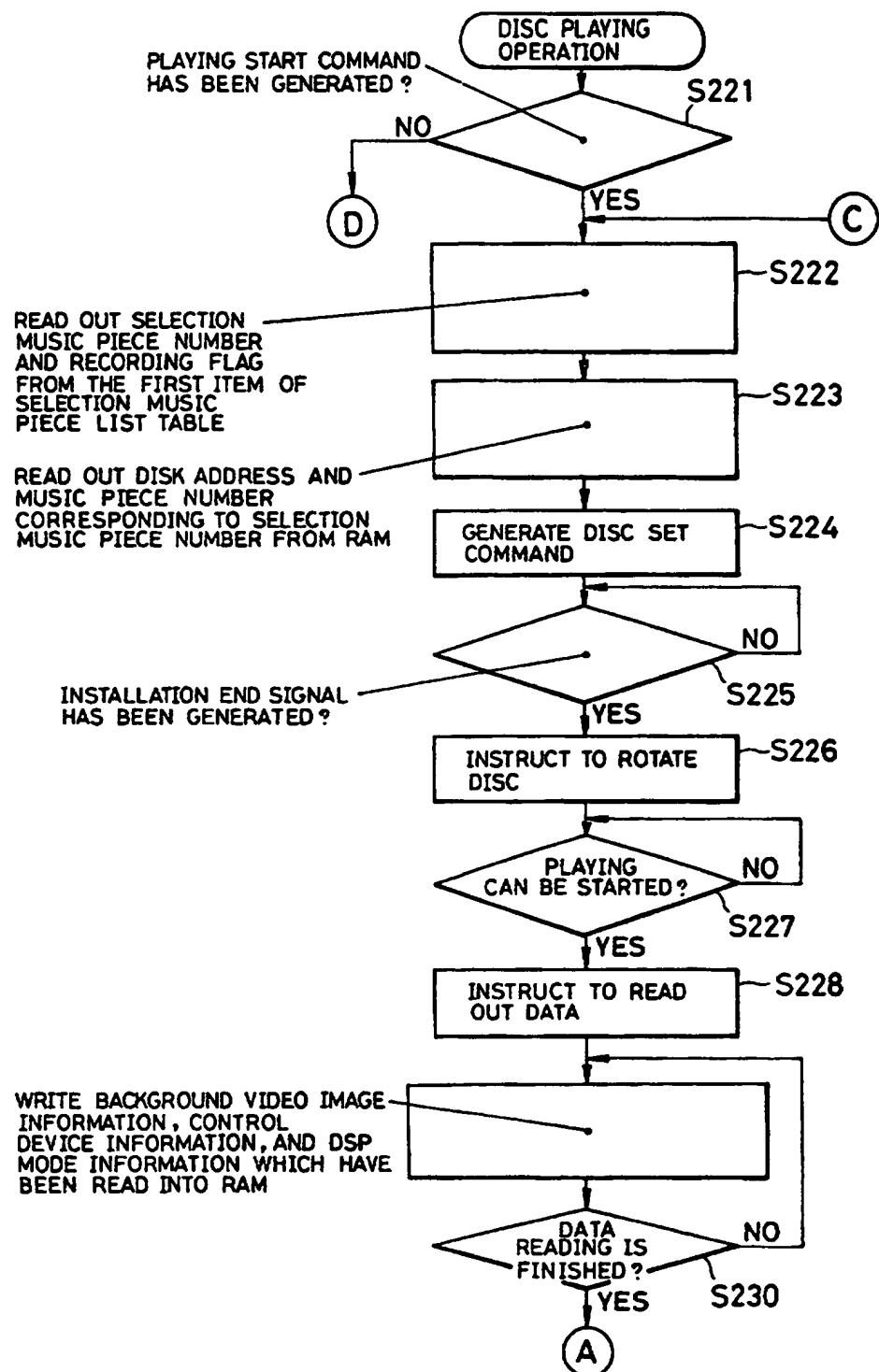


FIG. 24

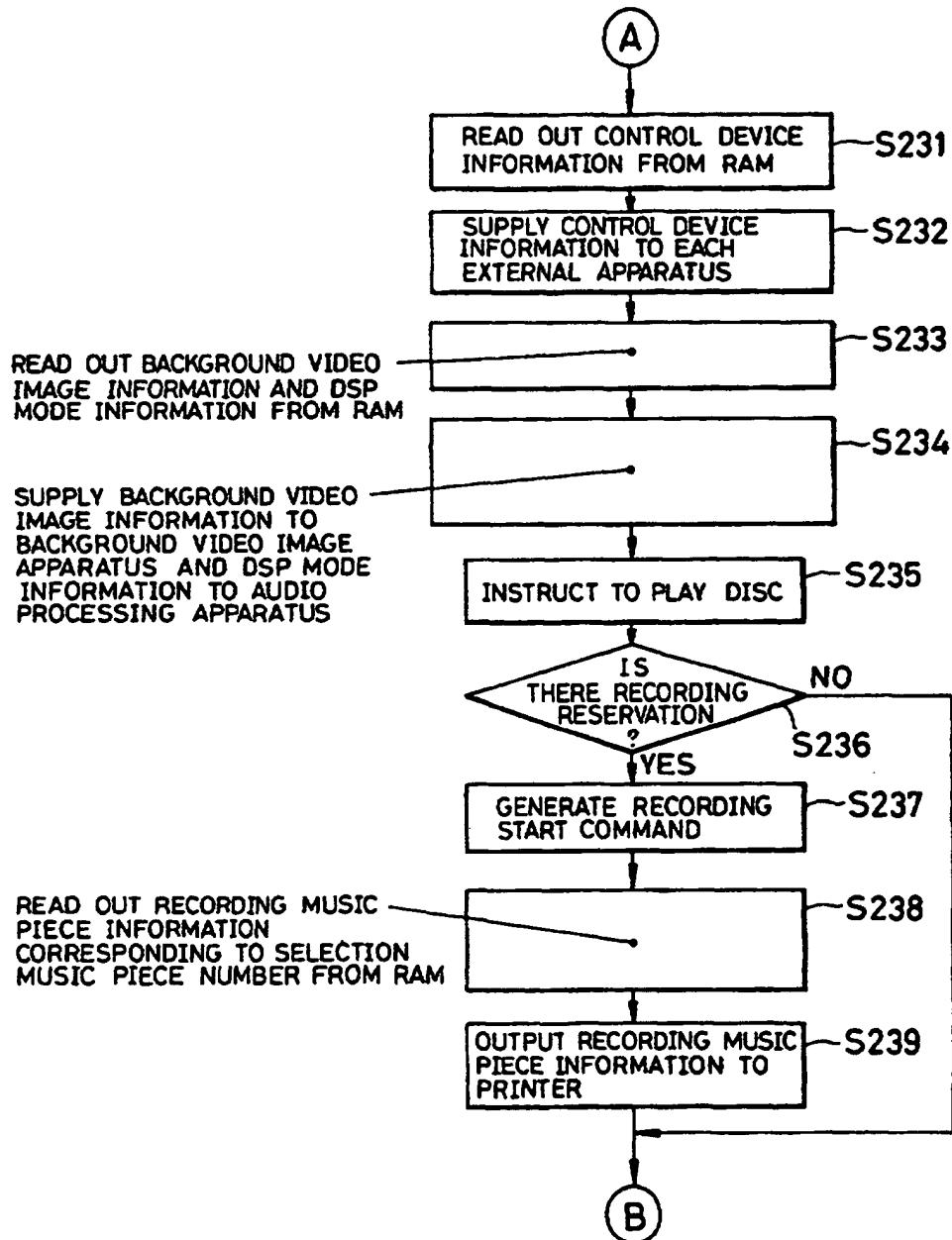


FIG. 25

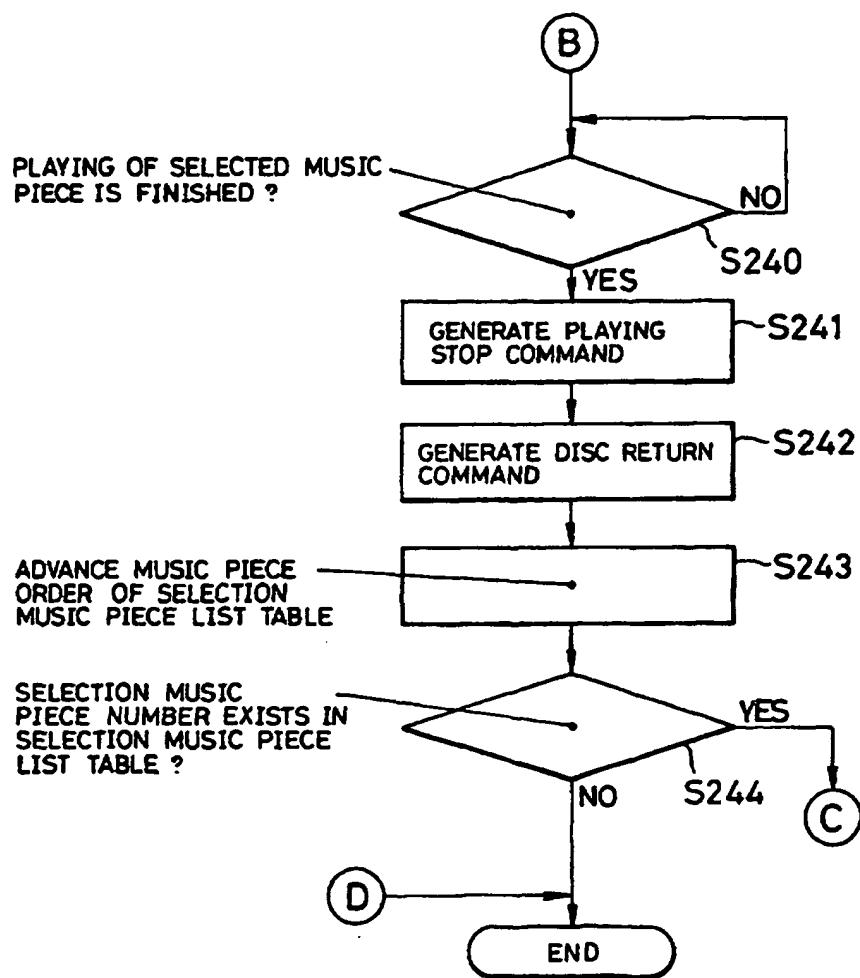


FIG.26

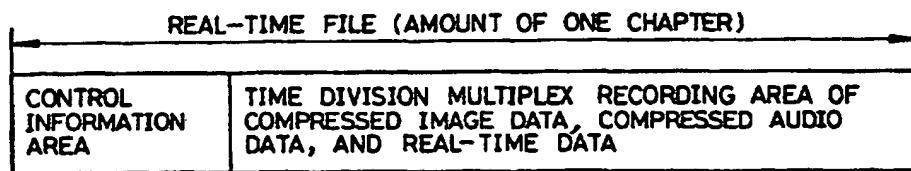


FIG. 27

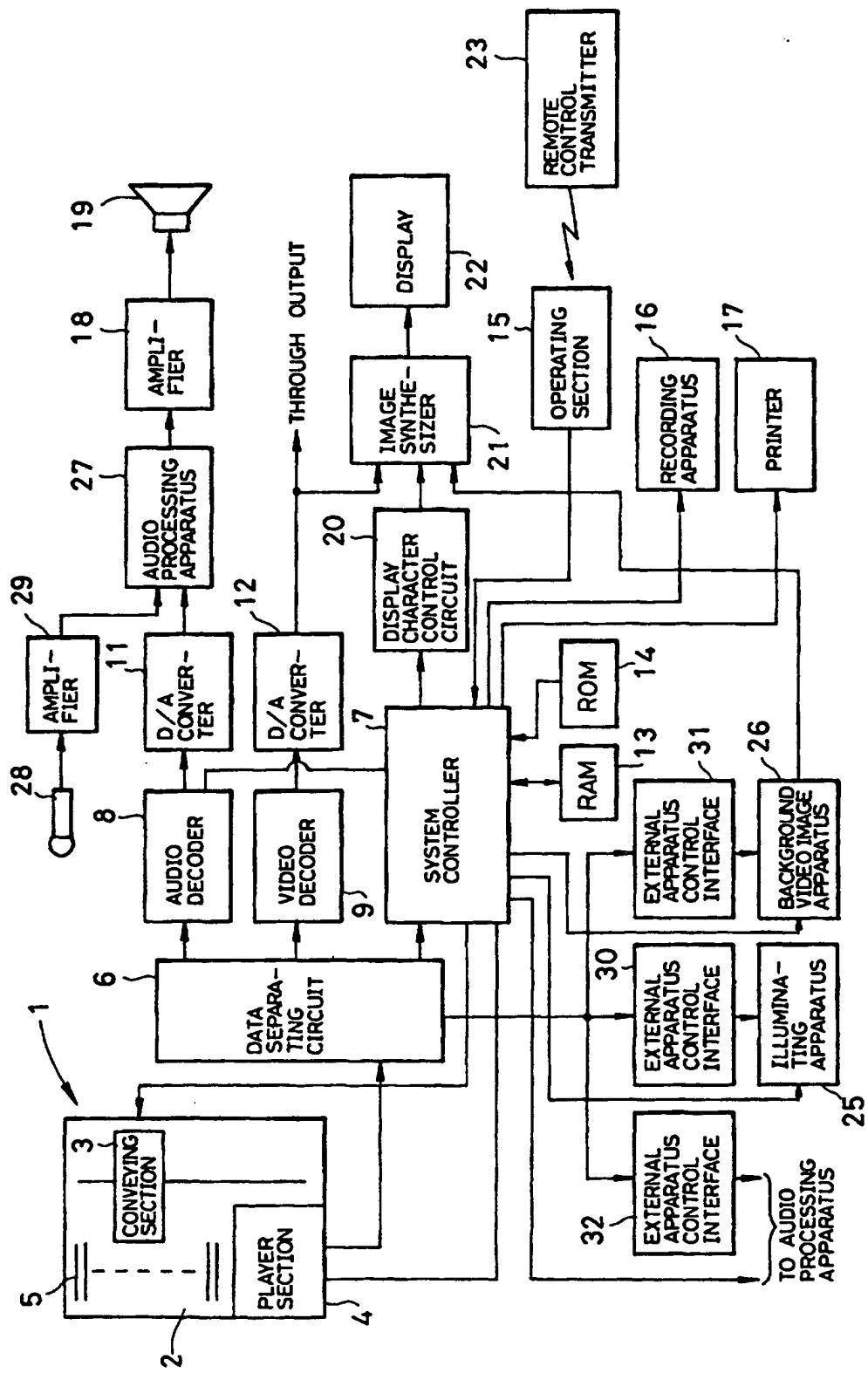


FIG.28

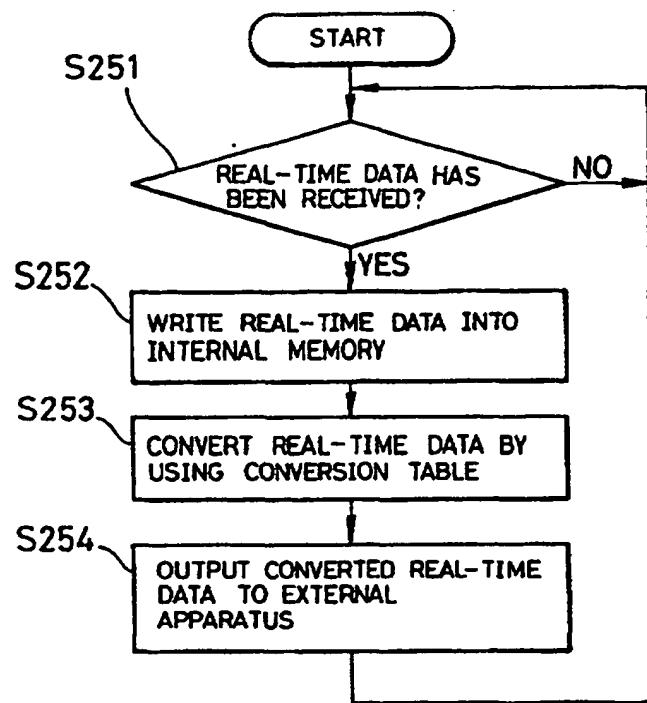


FIG. 29

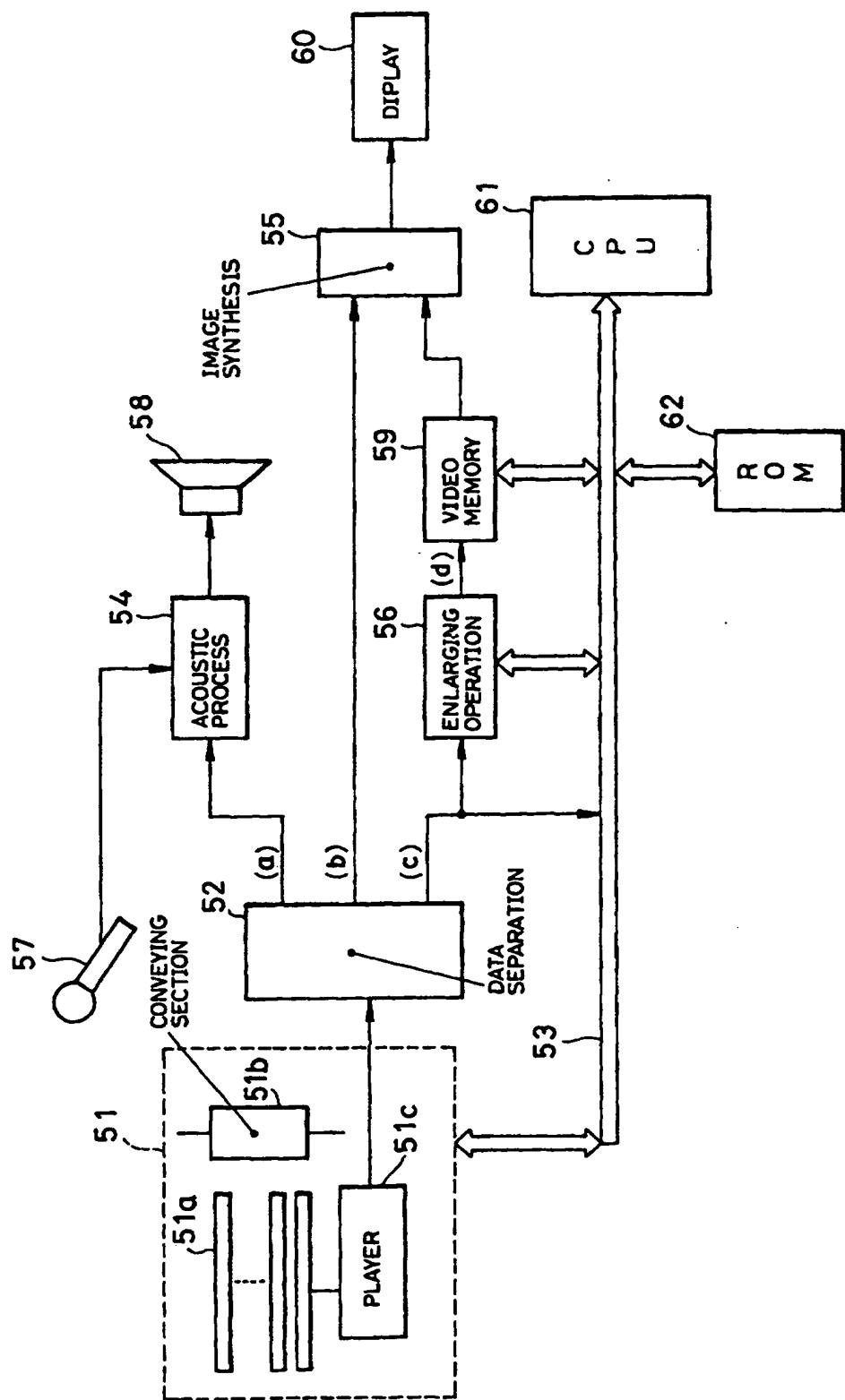


FIG. 30

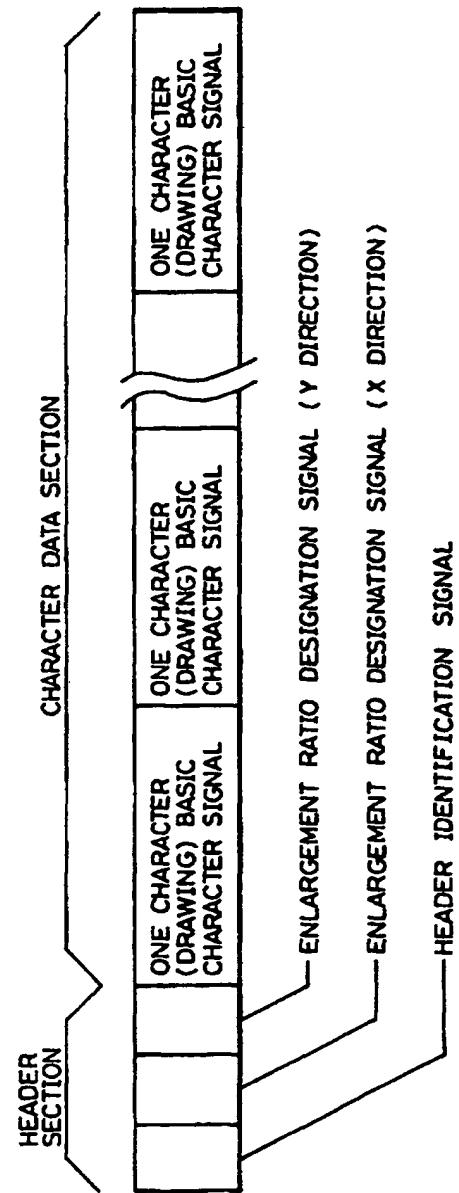


FIG.31

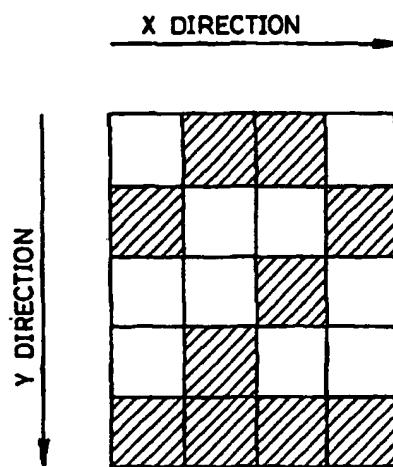


FIG.32

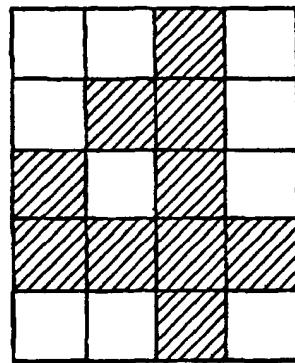


FIG. 33

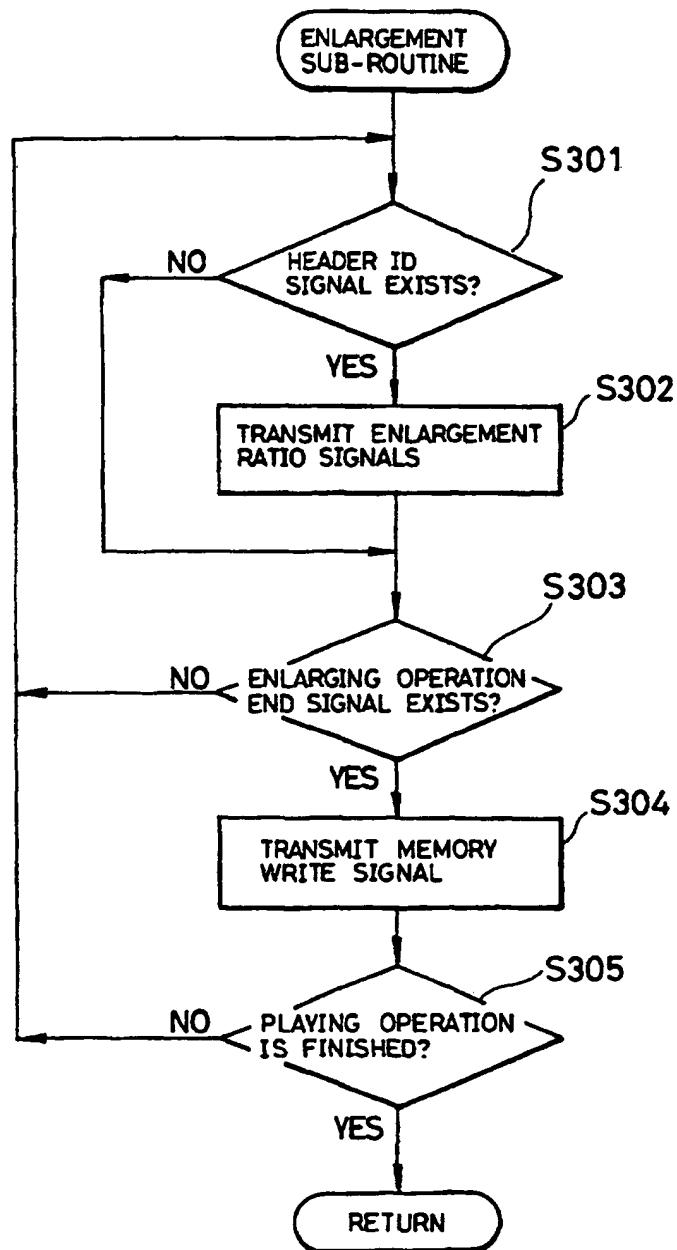


FIG.34

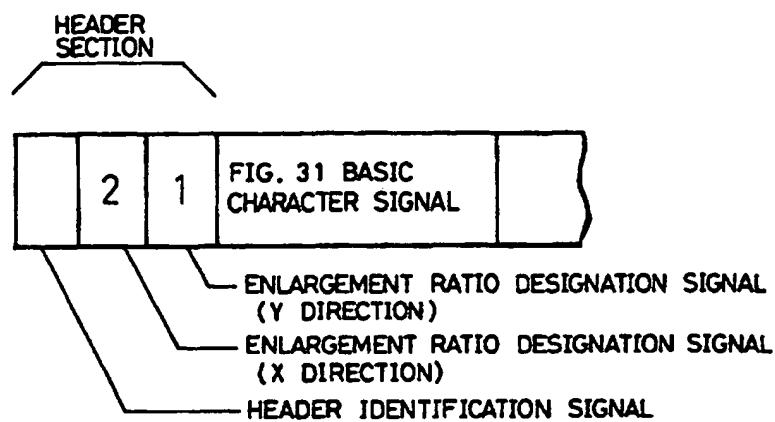


FIG.35

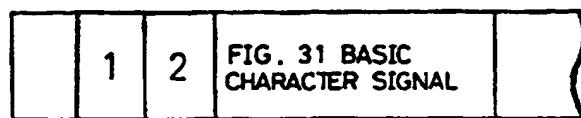


FIG.36

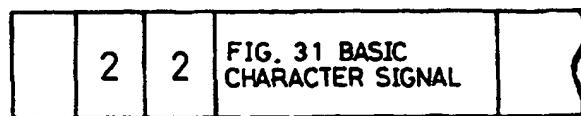


FIG.37

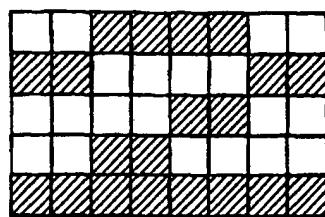


FIG.38

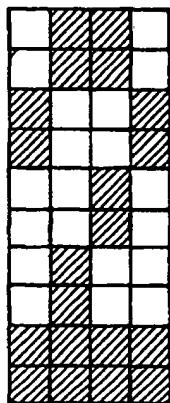


FIG.39

